Railway Age

SECOND HALF OF 1918—No. 13 SIXTY-THIRD YEAR

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ADAPTED FROM THE VIGOROUS FRENCH WAR POSTER OF ABEL FAIVRE AND CONTRIBUTED BY KERITE INSULATED WIRE & CABLE COMPANY

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Classified Directory of Advertisers, Page 6.

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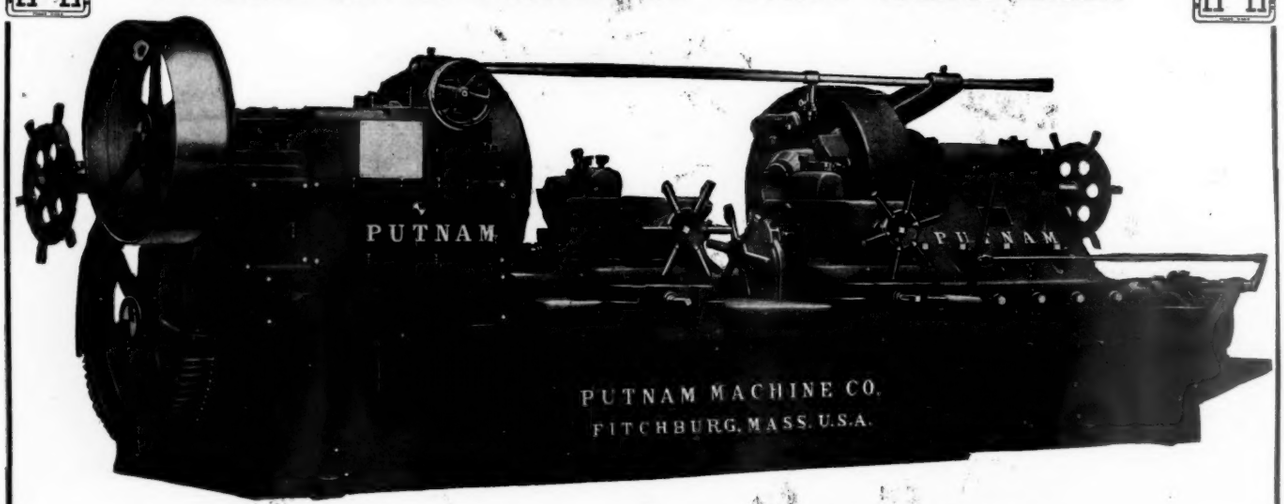

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2

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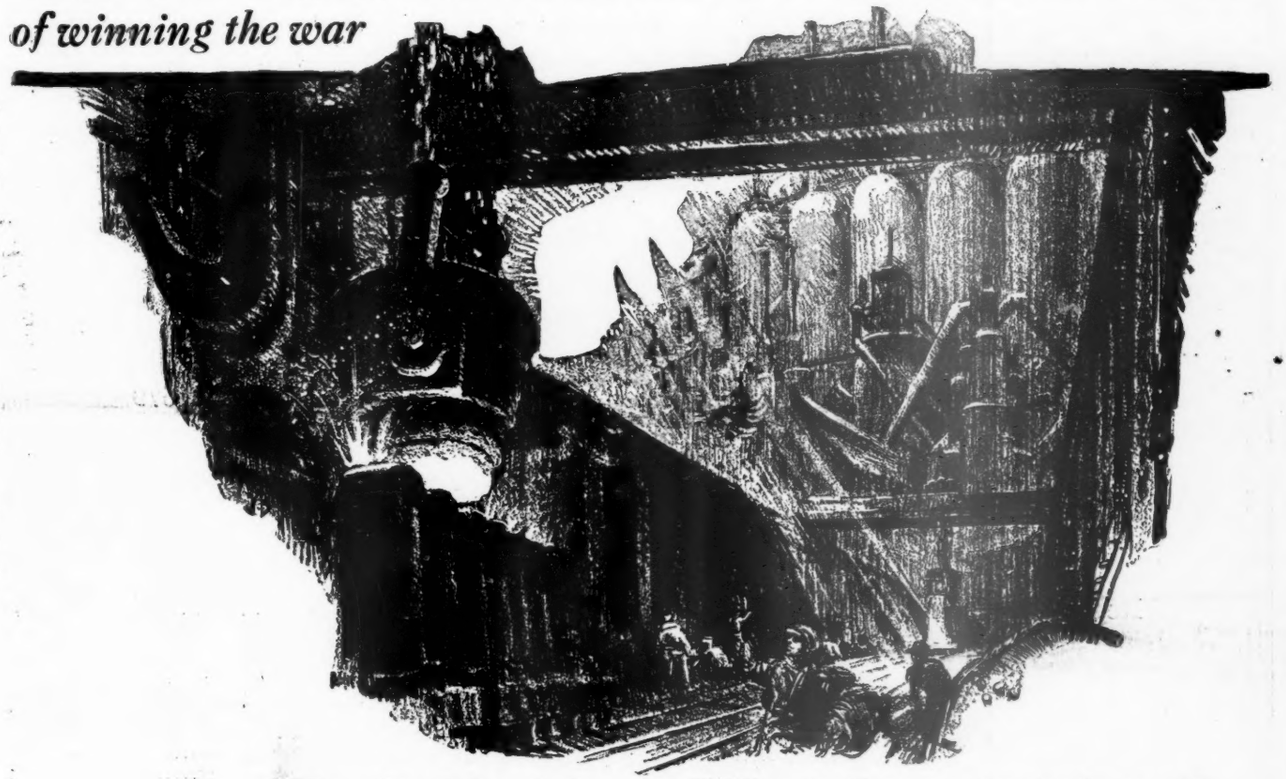

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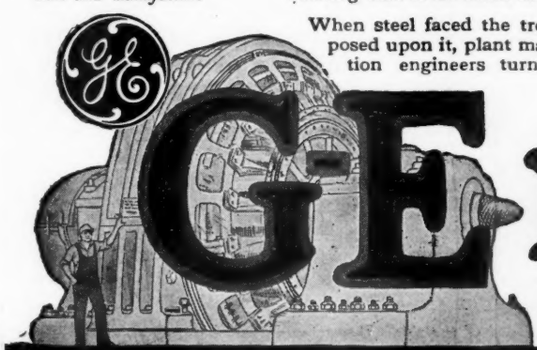

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Railway Age

Vol. 65 September 27, 1918 No. 13

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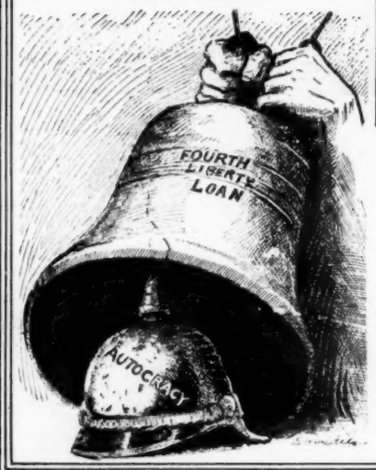

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Liberty Bonds Will Tame This

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EDITORIAL

Railway Age

Safety Work to Conserve Man Power

It was anticipated in some quarters that the work of safety organizations would be materially impeded in the wartime operation of railroads. On the contrary, safety work is becoming increasingly important as a means of conserving man power during a period when it is exceedingly difficult to replace employees lost through the draft, accidents and other causes. The director general of railroads is determined that the services of no railroad employee shall be lost through injuries or death from accident, if precautionary measures can prevent it. He therefore created the Safety Section of the Railroad Administration which is directing the activities of all existing safety organizations and is creating such organizations on Class I railroads which did not have them. The increased responsibility of railroad safety officers was emphasized in the railroad session at the National Safety Council, the proceedings of which are outlined elsewhere in this issue. In fact, the keynote of the meeting was "conserve man power to win the war."

Roadmasters' Convention Justifies Support

The officers of the Railroad Administration should feel highly gratified with the results following their support of the Roadmasters' convention which was held last week in Chicago. The success of this meeting was due in a large measure to the encouragement which the managements gave to the men who desired to attend and to the presence at the various sessions of regional directors and members of their staffs. The attendance was double that of any previous year, while the interest shown surpassed any previous record. The loyalty to their country and enthusiasm for the work in this time of stress which these men gained from this meeting were alone sufficient to justify all of the expense involved. The relation of their work to the winning of the war was discussed by Regional Directors Bush, Holden and Winchell, and also by others, in a way that brought an increased realization of the responsibility of railway men under present conditions. More than this, the discussion of the possibilities of the more general reclamation of materials and of methods for the conservation of labor, brought out many helpful suggestions. This convention illustrated the great possibilities for good inherent in meetings such as this. The railways need more of them now and in the peace times which are to come.

Don't Waste Paper

"Save waste paper but don't waste paper." This, a slogan suggested by the War Industries Board, is one that all of us should bear in mind. The newspapers and periodicals have recently been called upon not only to eliminate exchange copies, reduce the number of free copies to advertisers, etc., but also to cut down the number of their pages, etc. These savings will help considerably in saving paper, but they will have to be supplemented by savings in stationery, in packages and by reductions in the use of paper or paper products of all kinds. And similarly waste paper must be saved instead of being burned or thrown away, for the simple reason that in itself it represents one of the raw materials of paper manufacture. The reason for all these things is not simply due to a shortage of paper; it represents far more. First, there has been a great increase in the government's requirements, incident to the establishment of new departments, to the shipment of commodities in paper containers of one kind or another overseas, etc. The entire output of plaster board, to take one example, is being utilized for the construction of camps, hospitals, etc. Second, paper manufacture uses a considerable quantity of fuel—from one pound of coal for cheaper grades to three pounds for better grades being required for each pound of paper produced. On the basis of averages, a saving of consumption of 25 per cent in paper has been estimated to mean a saving of 2,500,000 tons of coal yearly. Third, many of the chemicals used in paper manufacture are of prime importance for ammunition and for the new chemical warfare brought upon himself by the barbarous Hun. Chlorine, sulphur and caustic soda, particularly, are needed for these purposes. A reduction in the use of paper will further save transportation space; it will save money and it will save labor, all three very important elements at present. In other words don't waste paper—it and the materials from which it and its products are made and the facilities for making it are too valuable under wartime conditions to permit of waste.

Air Consumption and Fuel Economy

An active and logical campaign is being conducted by the Fuel Conservation Section of the Railroad Administration and air brake men in general to show the great waste in fuel which accompanies the waste of compressed air. Instances reported from time to time indicate that there is a lack of appreciation of the relation between the two. In one instance it was found that locomotive air compressors were being used to supply high pressure air to a shop, while a perfectly good air compressor at the same plant was being operated far below its capacity to supply low pressure air to the yards. By working this compressor to full capacity and by the use of a reducing valve, enough air would be compressed for both the high pressure and low pressure systems without any need of the locomotive air compressors. Tests show that train-pipe leakage is a source of great waste. Leakage of seven pounds a minute on a 50-car train absorbs 91 per cent of the capacity of a 9½-in. locomotive air compressor. If, as a prominent air brake man once said, a label were placed on one of the two compressors that usually accompany locomotives, stating that "this compressor is for the purpose of supplying brake pipe leakage only," the waste due to this leakage would become more evident to the operating men. The trouble is, we think only of the air and not of the coal used to compress the air. Railway men have become accustomed to look upon leaks in the air lines as necessary evils. It has not been profitable to go to the expense of stopping all of these leaks. At the present time the conditions have changed tremendously. We must not look upon wasted fuel from a monetary standpoint. The fuel conditions are such that there is an anticipated shortage of 75,000,000 tons this year. It is not the money that is saved by fuel economy

that is to help win the war, but the fuel itself. It will take a tremendous amount of educational work to get everyone to appreciate this, but it is well worth while. Fuel is fuel, not money, and is far more valuable than what we have to pay for it. Every pound saved will do more towards winning the war than many times the amount of money it is worth.

Railway Signal Association Convention

The annual convention of the Railway Signal Association, which was held in New York last week, indicated clearly the earnestness and the purpose of the railway signal officers and men to do all in their power to carry on the work of the Association in a manner best adapted towards the winning of the war. This is the first convention which has been held since the great change has occurred in the relations which the railroads bear to the government. Because of this change and the proposal to amalgamate the various railroad associations, there was considerable speculation beforehand as to the number of men who would be in attendance. It was gratifying to both that the sessions were well attended, while the members were earnest and enthusiastic in their work. It is to be regretted that the railway managements have not urged more of their men to attend such meetings in the past, as signal men cannot help but benefit from an interchange of ideas which can only take place in gatherings such as this. At the conclusion of the meeting last week the men left with an added incentive to help win the war by doing all in their power to back up the government in the efficient operation of the railways, as the work of the association is directed along the lines of facilitating traffic and increasing the safety of operation. Some of the important matters considered were the studies being made with reference to handling trains by signal indications without train orders, the problem of signaling single track roads and the development of automatic train control devices.

"Bullets or Bolts"

"EVERY TRACK SPIKE SAVED means more bullets." This sentiment, expressed by several speakers at the convention of the Roadmasters' Association at Chicago last week, summarizes the material problem now confronting the railways of this country. Non-essential industries have already been denied the steel which they ordinarily require, but the railways are essential to the war program and their needs are therefore being supplied. However, the rapidly increasing military requirements have brought about a condition whereby there is not a sufficient steel producing capacity to meet the demands for munitions as well as for the so-called essential industries, including the railways.

Obviously one or the other must give way and at this critical time no railway man desires to curtail the supply of shrapnel, bullets or shells in order to give him rails, spikes or car steel so long as there is any reclaimable material along his line which can be made to serve until the crisis is past. This is the basis for the appeal which the Railroad Administration is making for the collection and reclamation of all materials. In past years the decision as to the extent to which materials should be reclaimed was based on considerations of economy. Now this is secondary to the ability to save material *at any reasonable cost.*

No road can determine the savings it can effect until it gives the most careful attention to this subject. On one line the track walkers carry wire hoops on which they string nuts and washers picked up in the course of their regular work. These materials are now worth about eight cents per pound, but in order to compensate the stores department for its expense in handling and sorting them, a credit of only three and one-half cents is allowed the maintenance of way department. Even on this basis, the credit on this account alone in one recent month on the road referred to averaged $40 per section, indicating that in that period each track walker collected over one-half ton of nuts and washers. Extended over the railway mileage of this country, this would release every month for bullets over 30,000 tons of steel now going into nuts and washers.

On this same road, it had previously been the practice for the section forces to collect the drawbars found along the right of way at the section headquarters where they were loaded on a scrap train once each month and sent to system headquarters. This practice has been changed so that these drawbars are taken to the station daily by the section forces. They are then loaded on the way freight each day and sent to the nearest car repair point where they may be needed. In this way local demands are supplied promptly with greatly decreased transportation, while the bars are returned to service with the minimum delay, which in itself reduces the stock necessary to keep on hand. The advantage of this plan is indicated by the fact that one local train on this road handled an average of 26 drawbars per day last month. This again released more shrapnel for the use of our men in their march to Berlin.

These are typical of hundreds of ways in which the railroads of this country can assist in supplying their own needs for steel and thereby reducing their actually necessary demands to the minimum. There is no more effective way for railway men to assist in the winning of the war than this. It is therefore their duty to use it.

Increases of Railway Earnings and Expenses

A QUESTION WHICH is of great interest and importance to the owners of railroad securities, to the officers of the Railroad Administration and to the traveling and shipping public is whether the advances in freight and passenger rates made in June will prove sufficient to offset the increases which are occurring in railway operating expenses. An analysis of the statistics showing the earnings and expenses of the large roads in July, as compiled by the Interstate Commerce Commission, does not inspire much optimism.

In July, 1918, freight rates in eastern territory were about 43 per cent higher, and in southern and western territory about 25 per cent higher than in July, 1917. These advances in rates, assuming no increase in traffic, should have resulted in an increase in earnings of approximately $80,000,000. The actual increase in freight earnings was $86,000,000, indicating that there was some increase in the amount of freight handled. In July, 1918, passenger rates throughout the country were about 50 per cent higher than in July, 1917. Assuming no increase in business handled this should have caused an increase in passenger earnings of approximately $37,000,000. The actual increase was $31,000,000, indicating a decline in passenger business. The total increase in earnings which the advances in freight and passenger rates should have theoretically yielded was $117,000,000; and this is just what it did yield, showing that total freight and passenger business was practically stationary. Larger earnings from other sources made the total increase in earnings during the month $120,000,000. At this rate the increase in earnings annually would be approximately $1,450,000,000.

Operating expenses in July, 1917, were $238,000,000, and, as reported for July, 1918, they were $317,000,000, an increase of $79,000,000. But the figure for July, 1918, is really not correct. It includes only $25,000,000 for advances in wages—in other words, only the first of the sev-

eral advances in wages granted by the director general—whereas, as shown in detail elsewhere in this issue, several additional advances since have been granted. Some of these are retroactive to January 1, 1918, others are not. In the aggregate all the advances in wages the Railroad Administration has made will aggregate at least $50,000,000 a month. Now, allowing nothing for advances in wages, the increase in operating expenses in July would have been approximately $55,000,000, or at the rate of $660,000,000 a year. Add to this advance in wages at the rate of $600,000,000 a year and they may aggregate $650,000,000—and you have an increase in operating expenses at the rate of approximately $1,300,000,000 a year, or only $150,000,000 a year less than the rate at which earnings are increasing. Furthermore, the train service employees, numbering about 350,000, already are asking for further advances in wages.

The operating income of the railways in the first six months of government control was approximately $300,000,000, less than the amount which will be required, on the average, to pay six months' standard return to the railway companies. In other words, the government incurred approximately that much deficit in operating the railways. It would appear that with increases in expenses so nearly keeping pace with increases in earnings, on the present basis of rates and wages, the Railroad Administration cannot grant any further large advances in wages without incurring the danger of being forced to make further advances in rates in order to make up the deficit already incurred and to prevent an additional one from being incurred.

Of course, the foregoing estimates are based chiefly on the statistics of a single month. Unfortunately, however, every estimate of the annual increase in operating expenses which is made, whether based upon the experience of a single month, or of a series of months, is larger than the last preceding estimate. In our issue for August 9 we estimated the annual increase for Class I roads at $1,040,000,000. In our issue for August 30, on the basis of later information we estimated it at $1,200,000,000. Now, on the basis of July results, it is necessary to estimate it at the rate of $1,300,000,000. It would appear that one of the main things needed on the railways just now is a tremendous drive to keep down operating expenses.

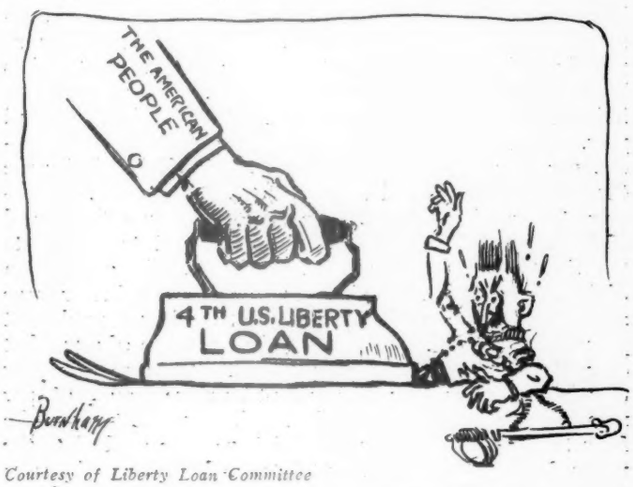
Courtesy New York World

Get Behind Foch with Liberty Bonds

Subscribe to Your Utmost

THE DRIVE FOR SUBSCRIPTIONS to the Fourth Liberty Loan will already be under way by the time this brief note comes to the attention of many of its readers. Six billion dollars is to be raised in 4¼ per cent Liberty Bonds between September 28 and October 19. Railwaymen have what is at once a difficult and an easy task before them in this drive.

The difficult part lies in the way in which they must live up to their former records in these loan campaigns. It may bear repeating that in the first loan they subscribed creditably; in the second loan they doubled their first loan totals; then in the third loan they considerably more than doubled their second loan totals. The total amount which will be raised in the fourth loan, $6,000,000,000, is double that of the third loan. It certainly does not seem too much to say



Courtesy of Liberty Loan Committee

One of the Best Ways to Flatten Him Out

that railwaymen to keep up their enviable record and their proper proportion may again be expected to double their own totals.

The easy part of the task is the far-reaching intensive organization rapidly being built up to solicit railwaymen's subscriptions; office committees, terminal committees, division committees, shop committees and all sorts of committees—every man in railway service will be reached.

But insistence on 100 per cent subscriptions does not seem to be enough. There should be 100 per cent subscriptions, but in addition subscriptions in 100 per cent amounts. The average subscription per railroad subscriber in the Chicago district in the third loan was $72, worked out on a basis of 84 per cent of the employees as subscribers. The Liberty Loan Committee of the Seventh Reserve District has estimated that on that basis and on the basis of 100 per cent subscribers in the fourth loan to double the total of railwaymen's subscriptions an average subscription in the fourth loan should be expected of $120 per railway subscriber. In view of the recent wage awards and the good pay which railwaymen are now receiving that amount should easily be reached, particularly inasmuch as payments may be made in eight monthly installments, the eight months period not beginning until January in the case of those still paying on the third loan.

Show what you think of Kultur—of the happily rejected Austrian peace squeal—of the actions of a race of barbarians that murders women and children, that wantonly destroys places of worship, that mutilates prisoners—SUBSCRIBE. Then show your respect for our soldiers over there who carry the message of right and liberty to the misguided Hun—Lend like they Fight—Subscribe to your UTMOST.

Buy Bonds to Your UTMOST

Doings of the United States Railroad Administration

Short Lines Reject Proposed Contract; Wage Increases Aggregate Over $600,000,000

WASHINGTON, D. C.

DIRECTOR GENERAL MCADOO has announced the delivery of 47 new locomotives to various railroads during the week ending September 14, of which 27 were built by the American Locomotive Company, 5 by the Lima Locomotive Corporation and 15 by the Baldwin Locomotive Works. Of these, 5 were of the standard Mikado type and the others were on orders previously placed by the railroads.

Wage Increases Aggregate Over $600,000,000

The orders issued by Director General McAdoo making increases in the wages and changes in the working conditions of railroad employees have followed each other so rapidly and have overlapped to such an extent that it has been difficult to follow them carefully. Recent estimates indicate that the increases already made, if applied to a full year, would aggregate between $600,000,000 and $650,000,000 per annum, as an addition to a payroll which for the Class I roads amounted to $1,750,000,000 in 1917. Moreover, the end has not yet been reached because the Board of Wages and Working Conditions has still to present to the director general its recommendations on the application of the telegraph operators for a further revision of their wage scale. The number of employees of the Class I roads last year was 1,740,000. They received an average of somewhat over $1,000 a year and their estimated increase this year therefore averages over 30 per cent or more than $300 per man. These figures are merely rough estimates because the facts that the increases as ordered have been applied to the wages in effect at a previous date, including any increase received in the meantime, and that the classification of employees used in the orders is different from that according to which statistics have been kept, have made it impossible to calculate with anything like exactness the full effect of the orders as measured in money. The difficulty is further increased by the fact that the number of employees in service has fluctuated considerably since the latest statistics were compiled and in many cases has been largely reduced.

The first order increasing wages issued since the government assumed control of the railroads was General Order No. 27, issued on May 25, and based on the recommendations of the Railroad Wage Commission. It applied to all employees receiving less than $250 a month and was made retroactive to January 1, 1918. The basic feature of the order was a scale of increases per month, ranging up to 43 per cent, together with daily, hourly, mileage and piecework scales based on the monthly scale, the increases to be added to the wages in effect on December 31, 1915. The total addition to the payroll as a result of this order was estimated at $300,000,000 to $325,000,000 per year. As this included any advances which had been made by the railroads since that date it was found that many employees would receive little or no advance from the order. Cases of this kind and others where the employees were not satisfied with the result were submitted to the Board of Wages and Working Conditions for further consideration and recommendation to the director general.

Supplement No. 2 to General Order No. 27, issued on July 3, extended the increases in wages to the employees of the Pullman Company, operating department, effective on January 1, 1918. It was estimated that this involved an additional increase of $2,750,000.

On July 25 the director general issued Supplement No. 4 to General Order No. 27, making a revision of and further increases in the wages of mechanical department employees, based on the recommendations of the Board of Wages and Working Conditions. This order applied to machinists, boilermakers, blacksmiths, sheet metal workers, electrical workers, carmen and molders and their helpers and apprentices, estimated to include in round numbers 500,000 men. The order superseded the provisions of General Order No. 27 as applied to these employees and provided minimum rates and increases based on the rates in effect as of January 1, 1918. The increases were made retroactive to that date and involved an additional increase in the payroll, above that resulting from General Order No. 27, estimated at approximately $150,000,000 a year.

An addendum to Supplement No. 4 issued on September 1 and effective on that date established new rates for coach cleaners. Supplement No. 5 to General Order No. 27, issued on August 9, extended the provisions of Supplement No. 4 to the corresponding classes of employees of the operating department of the Pullman Company.

Supplement No. 7 to General Order No. 27 was issued on September 5 and provided a new scale of increases for clerical forces and stationary engineers and firemen, oilers, boiler washers, power transfer and turntable operators, and common laborers in shops, roundhouses, stations, storehouses, warehouses, docks and yards. Various grades of increases over the rates in effect on January 1 were provided and made effective on September 1, superseding after that date the provisions of General Order No. 27 for the classes of employees affected.

Supplement No. 8 to General Order No. 27, issued on September 5, applied to employees in the maintenance of way department, except mechanics and helpers who were provided for in Supplement No. 4, including building, bridge, painter, signal, construction, mason and concrete, water supply, maintainer, plumber, coal wharf, coal chute, and fence gang foreman and their assistants, pile driver ditching and hoisting engineers, bridge inspectors, track foremen and assistants, track laborers, and miscellaneous employees. The increases were based on the rates of January and were also made effective September 1, superseding after that date the provisions of General Order No. 27.

Both supplements were based on the recommendations of the board. Generally speaking, the wage increases contained in Supplements No. 7 and No. 8 amounted to $25 a month or 12 to 13 cents an hour, including any increase granted under the general order. A statement issued by the Railroad Administration said the two supplements affected nearly one million employees and it has been estimated that they involved an additional increase in the payroll of from $150,000,000 to $175,000,000, per annum.

The Board of Wages and Working Conditions is expected to submit its recommendation to the director general on the application of the telegraph operators for further consideration. The train despatchers, who were not satisfied with what they received from the general order, also applied to the board, but on the ground that they are officers their application was transferred to the director general's office, and has been considered by the Division of Operation.

The brotherhoods representing the transportation department employees have also recently applied for further consideration of their wage scales on the ground that the application of the increases of the general order to the rates in effect in 1915 has re-established certain differentials and

other relations which had been ironed out as the result of the wage adjustments following the Adamson law. It is expected that they will be given a hearing about the first of the month.

Director General Declines Proposal for Test Suit on Compensation Contract

Director General McAdoo on September 19 gently but firmly declined the proposal of the committees representing the National Association of Owners of Railroad Securities for "co-operation in securing an adjudication" upon the questions at issue between the government and the association's committees as to the form of the compensation contract with the railroads, which the director general had previously decided against them. The proposal, which was adopted at a meeting of the financial committee of the association, and laid before the director general by Samuel Untermyer, was in brief that the contracts be executed by

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U. S. Railroad Administration Flag for All Vessels Under Its Control

the carriers except one and that a friendly test suit be instituted on behalf of that one. If the suit were decided adversely to the carrier the controversy was to be deemed ended but if the decision should be adverse to the government it was proposed that all contracts be amended to conform to the decision. The director general preferred to end the controversy in about half an hour.

Counsel for the various roads have been meeting with the representatives of the Railroad Administration adjusting those details of the contracts which must be arranged before they are presented for signature.

Labor Day Ticket Sales at Washington

As illustrating the enormous tax on railroad facilities at the present time, a report has just been made showing that on the two days preceding Labor Day, a larger number of railroad tickets were sold in Washington than ever before. In order to provide for the expected heavy business, extra ticket windows and clerks were arranged for at the Union station. Including sales both at the Union Station and at the consolidated ticket office, a total of 13,636 tickets were sold on Friday, August 30; these tickets aggregating $97,-411.31. On Saturday, August 31, a total of 23,013 tickets were sold, aggregating $127,503.94. Tickets for the two days, therefore, aggregated 36,649, for which $224,915.25 was collected.

The greatest number of sales made on any previous day, was on December 22, 1917, when a total of 13,047 tickets were sold, aggregating $78,605.20.

Further Increase in Express Rates Proposed

Director General McAdoo on September 19 requested the Interstate Commerce Commission to advise him as to how express rates shall be further advanced sufficiently to provide the American Railway Express Company with $12,000,000 of additional revenue with which to pay increased wages. The express company has suggested a method estimated to produce $23,679,000, of which approximately half would go to the director general, under the arrangement by which slightly over 50 per cent of the express revenues go to the railroads for express privileges, and the other half would be available for wages. There may be some interest for railroad men in the fact that the director general did not ask the commission as to whether additional revenues are needed but merely as to whether the method suggested, in its opinion, is proper, and if not what method would produce the desired result. The commission promptly gave notice that on October 8 it will hear testimony and argument at Washington by the express companies and any other persons interested in regard to the questions proposed by the director general.

Mr. McAdoo's letter to the commission was as follows:

"The amount realized from the advances in express rates recently allowed by you, approximately $10,000,000, has been entirely absorbed by the American Railway Express Company in making advances in the wages of its employees. I am satisfied that those wages must be still further advanced and that approximately $12,000,000 of additional revenue must be had for that purpose. I have applied to the express company for a suggestion as to what advances should be made in the present express rates to yield that additional income and have received from that company the memorandum attached.

"Acting under Section 8 of the federal control act I request you to advise me:

"1. Whether in your opinion, assuming that approximately $12,000,000 of express revenue must be raised, the method of advance suggested by the express company is a proper one? If in your opinion it is not, will you kindly state what method should be followed.

"2. If in your opinion the method suggested by the express company is proper, will the amount of advance proposed by it yield the sum required; namely, approximately $12,000,000? If not, what advance under that method will be required to produce that result? If you believe that some different method should be adopted, please indicate the amount of the advance which should be made.

"At the present time the express business is being conducted at a deficit which will be largely increased by the advances in wages which must be made. This deficit is borne by the Railroad Administration. You will therefore appreciate the importance of as speedy action as may be consistent with a proper consideration of the questions submitted."

The method suggested by the express company was as follows:

"It is suggested that the rates in Zone 1, both intra and inter-zone be increased three scales; that is to say, that the minimum rate of 55 cents be increased to 71 cents, and each rate above that increased accordingly, and further that 10 cents per 100 lb. be added to the commodity rates. This will make an increase of first class as a maximum of 16 cents or 17 cents per 100 lb.; on second class 12 cents, and on commodities 10 cents; with proportionate increases on shipments of less than 100 lb.; that the rates both intra and inter-zone in all other zones be increased by advancing two scales and adding 10 cents per 100 lb. to commodity rates. This will result in a maximum increase on first class of 10 cents or 12 cents, second class eight cents and commodities 10 cents per 100 lb., with a proportionate increase

on shipments of less than 100 lb. It is estimated that this will produce on Zone 1 business $17,037,000 and on all other business $6,642,300, or a total of $23,679,000, of which the express company will get $11,780,303, the balance $11,898,697 going to the director general in increased express privileges."

The above was made public by the commission after Charles E. Elmquist, Washington representative of the National Association of Railway and Utilities Commissioners, had written a letter to the director general suggesting that the matter be presented to the interstate and state commissions for hearing and consideration.

Short Lines Reject Proposed Contract

The committee representing the American Short Line Railroad Association on Tuesday definitely declined to accept the form of contract offered by the Railroad Administration to be entered into with the short line railroads relinquished from federal control in the week before July 1. The contract offered proposed to take the short lines back under a limited or partial form of federal control, without guaranteed compensation, under which possession of the property would remain with the company subject to the right of the director general to take it into actual possession at a later date under a new contract. It proposed that the company should continue to operate its property and retain all revenues and pay all expenses without any obligation on the part of the director general for the payment of expenses or for any risk or accident. It provided for the rescinding of the order of relinquishment and for division of joint rates on the basis in effect before federal control unless such division should be found to be unfair by the Interstate Commerce Commission after investigation. The short lines were also to receive their proportionate share of any increase in rates and were to be guaranteed an equitable allotment of cars and, where feasible, of motive power. They were to pay the per diem rentals in effect or such as might be established by the director general, and the Railroad Administration was to pay similar rentals for equipment belonging to the short lines.

In place of compensation it was proposed to insure to the company in any year the same proportion of competitive traffic which it had enjoyed during the three years ending June 30, 1917, or to make an allowance to the company in money if traffic were not so routed. Short lines were to be allowed the right to use the purchasing agencies of the director general in purchasing materials and supplies, to have the benefit of standard prices fixed for supplies, and to have repairs done in the shops of the trunk line railroads to the same extent as before federal control and at reasonable prices. The company was to be required to accept the contract in full adjustment, settlement and satisfaction of any and all claims against the director general.

The proposed contract was drawn by the representatives of the Railroad Administration after numerous conferences with the short line committee, one of which last week was attended by the director general. The short line committee proposed several modifications which were not allowed and on finally rejecting the contract asked for a further hearing before the director general. The representatives of the short lines are insisting on a basis of compensation such as that provided for in the federal control act which is being used as the basis for the contracts with the larger railroads.

Mechanical Standards Adopted

The Committee on Standards for Cars and Locomotives at its meeting last week adopted most of the specifications and general designs which had previously been approved for the proposed standard 70-foot baggage cars and for the proposed 60-foot cars, although the matter of truck design was not definitely decided. Specifications for the 70-foot car are now in the hands of the purchasing committee which is expected to ask for bids shortly. Revised specifications for the lighting equipment, to which there had been some objection on the part of the lighting specialty companies, were adopted on the recommendation of a sub-committee after consultation with six prominent electric lighting engineers.

The committee gave consideration to the use of substitutes for steel for headlining of baggage cars, eliminated fish racks from the 60-foot cars, appointed a committee to make a special study of the use of folding devices and began work on proposed standard rules for the inspection of spark arrester devices in locomotive front ends and for the inspection of ash pans to insure greater fire protection. The committee also recommended standards for tinware in accordance with the standards approved by the Master Mechanics' Association.

Fuel Conservation at Stationary Plants

On September 25, fuel conservation circular No. 14 was issued by the Fuel Conservation Section, covering the uses of fuel at railway stationary plants. About 17,000,000 tons of coal will be consumed in these plants on the roads in the United States and its cost, delivered to the furnace door, will be approximately $60,000,000. The attempt to conserve the fuel used in these miscellaneous power and heating plants is apt to be relatively more fruitful than the efforts directed towards locomotive fuel consumption, because the general efficiency of small isolated plants is usually much lower than that of the locomotives and they are ordinarily subjected to less thorough supervision. The circular mentions many methods by which savings can be most readily affected in respect to the design and equipment of the plants and their maintenance, and to the methods of operation.

Symbol of Liberty
The Glory of the World
Washington Fought For It... Patrick Henry Cried For it... Nathan Hale Gave His Life For It... Lincoln Was a Martyr To It.....
Millions of Our Sons Have Died For It.....
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Lend Like They Fight

Annual Meeting of the Railway Signal Association

Zinc-treated Ties, Take-siding Indicators and a Number of Other Details Are Considered

THE ANNUAL MEETING of the Railway Signal Association was held at Hotel McAlpin, New York City, September 19 and 20, with about 250 members in attendance. W. H. Elliott, (N. Y. C.) president of the association, occupied the chair, and H. S. Balliet, (N. Y. C.) acted as secretary of the meeting.

The president, in his opening address, dwelt mainly on the changes in the relations of the railroads to the government during the past year. He said, in part:

"Our association, among others, has been approved by the director general of railroads to continue the valuable work we have been doing; and until events arise which may make other action desirable we should each do our part in carrying on committee work and the work of the association . . . but, of course, without detriment to our regular work at home. Without the transportation furnished by the railroads the participation of this country in the war would be almost impracticable, and to the successful results now being accomplished the use of signals and their proper maintenance has in large measure contributed. In practically no other department is the work so entirely one of safety. While the use of signals increases the capacity of a road it is to the increased safety of operation of trains that the growth of signaling in this country has been largely due. The work of the association in establishing standards and practices has been of great benefit. In unity we find strength.

"At the request of the director general of railroads this association has conferred with other approved associations in formulating recommendations looking to the amalgamation of all into one association. No opinion can be expressed at this time as to the final outcome. It is desirable that we cordially comply with the expressed wish of the director general and assist in the formation of an amalgamated association, confidently leaving to the future to determine the details of our work and the organization we may maintain.

"The regional committees of the association have done much good work and should be encouraged to continue their work of education and co-operation.

"Our service flag shows that 59 of the members of our association have enlisted in the service of our country. Of this and in our knowledge of the high personal character, ability and experience of these men we are justly proud; to them we extend our confidence, honor and regard, knowing full well that in all situations in which they may be found they will acquit themselves with honor to their profession and to their country."

The secretary reported 78 new members, and three reinstated, but this addition was more than offset by the deaths, lapses and 59 names put upon the reserve list because of being in the military or naval service, leaving the net membership at present at 1,191. The soldiers, however, should be added to this number, as the only technical change in their status is that while they are in the national service they are not required to pay dues. Each issue of the Proceedings of the association contains a picture of the service flag, with stars indicating the number of members thus set apart.

The board of directors reported the treasury in good condition. W. H. Arkenburgh has presented to the association his signaling library, which is to be kept by the secretary.

Zinc-treated Ties

The most interesting discussion of the meeting was on a subject which did not appear in the program, namely, the resistance of ties as affecting the economical operation of track circuits. Consideration of questions about creosoted ties brought out the fact that because of the scarcity of creosote oil at the present time zinc-treated ties have been used in many places; and the zinc in the ties comes too near being a good electrical conductor. A number of members said that they had been obliged to shorten their track circuits where these ties were used. It appears that trouble with ties is most prevalent in hot and dry weather and least so in wet and cold weather. After about one year the difficulties usually disappear. On the Union Pacific track circuits have worked satisfactorily on track sections 2,000 ft. long with zinc-treated ties. Brine from refrigerator cars has caused similar trouble. The bad effects of brine have been somewhat modified by oiling the roadbed; but those who have used oil finally concluded that the best remedy was to shorten the track sections.

F. W. Bender (C. R. R. of N. J.), said that on one section of that road 1¼ miles long, at Whitehaven, Pa., a section which, for sixteen years, has been operated with four cells, two series of two each, with one-half ohm resistance between the battery and the rails, and a normal current of about 600 milliamperes at the battery end of the block and 110 milliamperes through the five ohm relay at the other end, the introduction of zinc-treated ties made trouble. Because of a derailment 2,580 new ties had to be laid in this section and these were zinc-treated; and at once it was found impossible to make the relays pick up. To properly operate the signal it was necessary to put in 16 cells of battery; four banks of four cells each. The leakage caused by the ties resulted in a current at the battery end of 4.2 amperes, in dry weather; and after a rain this rose to 9 amperes; and only 80 or 90 mills could be got at the relay.

Some of the zinc-treated ties were tested, conductors being attached to the tie at two points 4 ft. 8½ in. apart; and the following resistances were found: 2,200, 1,700, 401, 400, 388, 329, 326, 260, 220, 125, ohms. The zinc-treated ties in some cases generated a current of their own, a difference of potential of 20 milli-volts being recorded at two points on the tie 4 ft. 8½ in. apart. The block section was divided in the middle but still the current required was very excessive.

Mr. Bender propounded the question whether it would not be more economical to use untreated ties; in other words, whether the zinc treatment prolongs the length of life a sufficient amount to cover the excessive cost of battery. At present the cost of battery material for this one section amounts to from $75 to $100 a month, as compared with $3.75 before the change in the ties. To divide the section into five or six short sections would cost from $1,200 to $1,500.

Mr. Bender knew of some roads which would not permit the use of zinc-treated ties in block signaled territory. He understood that the conclusion had been reached by those roads that the additional life of the ties was purchased at too high a cost. Just now there is another reason for economizing in zinc and copper, because the government needs these metals in the prosecution of the war.

The whole question was referred to committee No. 4, C. F. Stoltz (C. C. C. & St. L.), Cincinnati, chairman, for investigation, with instructions to make public, as early as possible, any instructive conclusions reached by the committee.

Committee Reports

Taking up the several committee reports the meeting discussed first that of committee No. 2, mechanical interlocking, C. J. Kelloway (A. C. L.), chairman. This committee presented a specification for the improved Saxby & Farmer interlocking machine, and a unit specification for painting, including material. There was a considerable amount of discussion of the interlocking, and a brief discussion of the painting, but both specifications were finally adopted and submitted to letter ballot.

This committee also reported a specification for pipe compensation which, after a long discussion, was approved for submission to letter ballot, except the table shown on page 258 of the September issue of the Journal of the Association. This table was criticized as not containing enough detail to enable workmen in the field to use it with facility. The committee will present a revised table at the next meeting.

Committee No. 10, J. A. Peabody (C. & N. W.), chairman, made a report summarizing a number of subjects on which it had presented discussions in the March and other preceding meetings. It reaffirmed its opinion that overlaps are not desirable for following movements, and this was approved for submission to letter ballot. The same action was taken concerning the designs presented by the committee and printed in the March Journal, pages 46 to 62 inclusive, for fixed stop boards, speed limit boards, resume speed, yard limit, crossing one mile, whistling post, etc.

This committee reported on "take-siding indicators," and presented drawings showing the practice on eight different railroads. The drawings appear on pages 276 and 277 of the September Journal. Of the large number of railroads which had been communicated with by the committee the great majority reported that no such indicators were in use.

There was a long discussion on the fundamentals governing the application of these indicators, as laid down by the committee. The declaration that such an indicator should always be located not less than breaking distance from the switch was criticized by several members, as was also the recommendation that the light on the indicator should always be a flashing or winking white light; and the list of fundamentals was finally referred back to the committee for further action.

This committee presented a large amount of matter as information, including a report on the problem of signaling single track roads, printed in the March Journal, pages 36 to 46 inclusive; a report on various types of light signals for day and night indications, given on pages 6 to 11, inclusive, of the March Journal; and notes on various automatic-stop inventions, given on pages 62 and 63 of the March Journal. An account of the use of position light signals on the Pennsylvania Railroad, presented as supplemental information, was printed in the *Railway Age* of July 26, page 177.

Committee No. 3, F. B. Wiegand, chairman, submitted typical circuits for power interlocking, shown in diagrams printed in the March Journal, pages 26 to 30. This matter was accepted as information. It also presented a specification for power interlocking which, after a long discussion, was referred back to the committee. This specification is printed on pages 198-204 of the Journal for June.

A specification for impregnated fibre conduit for the protection of insulated wires and cables, printed on pages 211-216 of the Journal for June was, after considerable discussion, and the acceptance by the committee of numerous changes in detail, approved for submission to letter ballot.

Committee No. 5, L. R. Mann, chairman, presented some revisions of certain rules in the code for the maintenance of mechanical interlocking plants, as shown in the Manual of 1913. The rules, as revised, were approved for submission to letter ballot, the meeting having first instructed the committee to renumber the instructions as made necessary by the revisions.

This committee presented some information, printed in the Journal for June, pages 170-171, concerning the handling of trains on single track without train orders, summarizing replies from 15 different roads, without, however, giving the names of the roads. The rules for operating trains by signal indications, without written orders, as in use on the Nashville, Chattanooga & St. Louis between Cowan, Tenn., and Sherwood, are given in the Journal for June, pages 172-177.

Committee No. 13, on electric testing, P. M. Gault, chairman, presented a revised drawing (No. 1422) of an adjustable resistance for testing, and this was adopted for submission to letter ballot. The committee proposes to present at a future meeting a smaller instrument.

Committee No. 6, standard designs, F. P. Patenall, chairman, presented a number of new and revised designs. The meeting adopted and submitted to letter ballot the designs for a signal blade, page 17, March; a semaphore lamp No. 1100, page 188, June; electric lamp No. 1222, page 189; details of same, page 190; ladders, etc., Nos. 1362-1372, pages 9-15 March; double tang ends No. 1376, page 16, March; and crank bearings for 6-in. pipe, No. 1398, page 191, June.

A specification for signal roundels, lenses, and glass slides was presented by R. E. Trout, chairman of a sub-committee of Committee No. 6, and this, after slight changes suggested by one or two members, was adopted for submission to letter ballot. The committee will add to the specification a paragraph relative to packing and marking. Some information on the subject of illumination was presented as a supplement to this report.

A drawing, No. 1257, showing the application of interlocking fittings to a single switch, presented by Committee No. 6 for discussion, was made the text of a long talk on switchrods, dealing principally with the question whether they should be fitted in a vertical or a horizontal position; and it was voted as the sense of the meeting that the horizontal rod is preferable.

A specification for single phase track transformer, presented by Committee No. 8, C. H. Morrison, chairman, and printed on pages 266-273 of the September Journal, was adopted and submitted to letter ballot, after correcting a few typographical errors. The same action was taken on a revised specification for alternating current motor semaphore signal, given on pages 217-226 of the Journal for June.

Committee No. 11, R. B. Elsworth, chairman, presented a code of directions for installation of lead type stationary storage battery, printed in the Journal for March, page 22, and revised in the report printed in the June issue, page 195. This was approved for submission to letter ballot. The same action was taken on a design for a concrete battery box No. 1343, page 193, of the Journal for June, and a battery jar, No. 1053, page 194, after a correction had been made in certain figures on the last named drawing.

Committee No. 7, E. G. Stradling, chairman, presented a report recommending the use of the 2-ohm relay in track circuits provided the recommended limiting resistance, shown by the committee in the table on page 7 of the March Journal, is used in series with the battery. This was approved and ordered submitted to letter ballot, after eliminating the clause which would confine the recommendation to caustic soda battery. The table referred to (page 7 of the March Journal) showing battery voltage limits, was also ordered submitted to letter ballot.

Committee No. 12, R. C. Johnson, chairman, reported that a draft had been made of a form of contract for the installation of block and interlocking signals, copied in large measure from the standard of the American Railway Engineering Association, but the draft was not yet in shape to be printed; the committee proposes to have it ready to be shown in the next Journal.

Officers

The officers of the association chosen for the ensuing year are as follows:

President, R. E. Trout (St. L.-S. F.); first vice-president, C. J. Kelloway (A. C. L.), automatically promoted from second vice-president; second vice-president, F. W. Pfleging (U. P.); secretary-treasurer, H. S. Balliet, Grand Central Terminal, New York City. The following are added to the Board of Direction for two years: G. E. Ellis (Interstate Commerce Commission); H. K. Lowry (C. R. I. & P.); B. Wheelright (Grand Trunk); E. E. Worthing (Southern Pacific).

The Roadmasters Have Successful Convention

Latter Part of Program Includes Papers on Rail Defects and Supply of Cross Ties

THE COMMITTEE REPORTS and part of the papers presented at the thirty-sixth annual convention of the Roadmasters' and Maintenance of Way Association, which was held in the Auditorium Hotel, Chicago, last week, were abstracted in the *Railway Age* of September 20. Abstracts of two additional papers presented at that meeting which were not available in time for that issue are included in this article.

The convention was the most successful one in the history of the association. An attendance of over 600 roadmasters was recorded, this being almost double that of any previous year. This large representation of officers engaged in track maintenance from all parts of the country was in large measure the result of the support which the Railroad Administration gave through encouraging men in this branch of the service to attend the meeting. The sessions were characterized by unusual interest and by active discussion.

At the annual business meeting on Thursday morning the following officers were elected for the ensuing year: President, J. B. Oatman, roadmaster, B. R. & P., DuBois, Pa.; first vice president, J. W. Powers, supervisor, N. Y. C., Rochester, N. Y.; second vice president, W. P. Wiltsee, principal assistant engineer, N. & W., Roanoke, Va.; secretary, P. J. McAndrews, roadmaster, C. & N. W. Sterling, Ill., (re-elected); treasurer, Coleman King, supervisor, L. I. R. R., Jamaica, N. Y., (re-elected); directors, F. J. Meyer, roadmaster, N. Y. O. & W., Walton, N. Y.; L. M. Denny, supervisor, C. C. C. & St. L., Indianapolis, Ind.; and J. E. Bone, roadmaster, Mo. Pac., St. Louis, Mo.

The annual report of the secretary showed that 152 new members had been received during the year, bringing the total membership to 1098. The report of the treasurer showed a balance of $1648 in the treasury.

Common Defects in Rails and Means of Detecting Them in Track

By C. W. Gennett, Jr.,
Manager, Rail Inspection Department, Robert W. Hunt & Co., Chicago

The reports of defective and broken rails generally require the assignment of the individual case to one of six or seven classes. Four classes are sufficient to cover all conditions of what may be termed honest failures; that is, such a condition of the rail as requires its removal from the track, but excluding failures directly due to bad maintenance of track or equipment. The four classes recommended for these reports are:

Class 1—Broken rails; meaning, literally, rails which have broken completely through the section into two or more parts with a generally square or angular fracture through the cross-section and without sign of the final complete fracture having been caused, or contributed to, by any of the other three classes.

Class 2—Broken bases, covering all cases of pieces broken out of the base, such as crescent or moon-shaped breaks, and including also complete fractures obviously resulting from a piece originally breaking out of the base.

Class 3—Head failures; including all rails otherwise satisfactory, but which require removal because of defects, such as splits in the head, crushed, mashed, or flowing heads.

Class 4—Web failures, covering all classes of failures obviously originating in the web and extending for some distance along it, and failures at the bolt holes, which might be incorrectly supposed to come under Class 1.

Various subdivisions of these classes might be made in some cases to afford more complete statistics, but, generally speaking, it would seem to be better policy to concentrate all efforts on obtaining accurate records of failures positively known to result from defective manufacture and assign them to the proper one of four classes than to invite possible confusion and error by requiring a more extended and detailed description.

Defects of rails might be broadly classified as either apparent or concealed. Apparent defects are those easily discernible upon inspection at the mill. They consist of flaws occurring on any part of the surface and which result, when seen by the inspectors, in causing the rail containing them to be classified as No. 3 or scrapped according to the size or number of flaws in it. If a flaw occurs near the end of a rail, it may be sawed off, leaving a short length of rail satisfactory for shipment, but frequently a reinspection of short rails locates other flaws so that short length No. 2 rails may result. No 2 rails are always painted white on both ends and, in addition, two prick punch marks are placed on the web about two feet from each end, so that the rails can be later identified in the track. Short length rails are invariably painted green on each end.

Pipes are often found on the ends of rails, usually in the web or near its junction with the head, and occasionally blisters occur on the web. The detection of either pipes or blisters results in scrapping the rail. Seams resulting from the opening of blowholes in the sides of the ingots when being rolled may occur on any portion of the rail section and manifest themselves in faint lines running in a longitudinal direction. They are generally more easily seen on the head and on the base, but are often hidden from view by scale, so that inspectors sometimes fail to notice them and the rails pass shipment as No. 1, when they should have been No. 2. Laps resulting from imperfect rolling methods are defects which the mills have very largely overcome, but they sometimes show, especially on the sides of rails and cause rejection.

Concealed defects, that is, defects that cannot be discovered by any examination of the rail's surface, are the most important and dangerous. They are without question the direct cause of most of the failures which have been divided into the four classes above mentioned. Flaws, or pipes, or seams, can be detected as described and ample precaution taken to prevent rails containing them from being used in main line tracks, but defects that are concealed in some way afford no protection against the use of the rails, and in many cases no manifestations of the defect occur until rupture results.

The four classes for defective rails suggested above have

been put in what may be considered the order of their danger, and they will be so considered here.

Broken Rails

Broken rails may result from innumerable causes, some of a chemical and some of a physical nature. It is easy to imagine rails made of steel unduly hard and brittle and hence without resistance to shock. Such steel will produce broken rails, but the physical and chemical tests laid down by the specifications protect against such conditions to a very large extent. Unfortunately, however, specifications are not what might be termed 100 per cent positive in this respect and examinations of some broken rails have shown them to be of such a chemical composition that their use was unwarranted. Rails have also been known to contain hard spots, due, perhaps, to an imperfect fusion of some of the materials added to the steel when it is in liquid form and no specified chemical or physical tests are apt to detect such conditions. Still, again, rails seem to have a faculty of "just breaking," giving the square or angular fractures across the section that have been mentioned, and beyond the fact that steel has a limit of endurance, which has in these cases probably been exceeded, we are totally unable to assign a cause for the failure.

Such cases as these offer no signs of weakness to either the track-walker or the expert. With transverse fissures they constitute a most dangerous menace to traffic. Transverse fissures are first of a silvery color, invariably in the head of the rail and on the gage side. Their development or growth may extend to the surface, in which event air is admitted to the fracture and discoloration occurs. I am told that such cases can be detected by examining the gage side of track carefully for indications of vertical rust streaks, which are said to be sure evidence of fissures, but, notwithstanding, many failures have occurred when the fissures did not extend to the surface and hence offered no possibility of detection.

Broken Bases

Prior to the general adoption of newly designed rail sections several years ago, the principal features of which are heavier or thicker bases, the most prolific source of rail trouble was due to the thin flanges of the older sections breaking out in the form of half moons or crescent shapes. Much relief has resulted by using the new sections with the thicker flanges, but the cause of the trouble is so intimately connected with maintenance conditions that broken bases still constitute a serious class of rail failures. The piece of the flange that originally breaks off, generally at a tie, is almost always found to show a seam on the surface of the fracture. Rail manufacturers assert that seams are a perfectly natural effect, to which all rails are susceptible, but the fact remains that various conditions of treatment may greatly influence their production. Be that as it may, the seams on the base, which escape the inspector's attention, being often covered at the mill with newly-formed scale, offer such a reduced strength to the section that it is unable to resist the strains of unequal tie bearings. Pieces, therefore, break out and in many cases complete rupture of the section occurs soon afterward.

Pains must be taken to prevent fractures occurring in this way from being ascribed to class 1, that is, to "Broken Rails." The question as to which class the failure belongs can almost always be answered by examining the fracture across the base. If it is straight from flange to flange, it should be classified as a broken rail; but if it contains a jagged or re-entrant angle, it should be put almost without a doubt in the class of broken bases.

Head Failures

Any condition of quick-flowing metal on the head of the rail, widening or mashing of the head so that the angle bar fit is lessened, or any signs of dark streaks along the polished surface of the rail, are almost sure indications of head failure. Segregated steel is the chief cause attributed to this condition and segregation is one of the natural defects of all steels. Segregation is the condition resulting from the solidification of liquid steel, whereby some of the chemical elements automatically seek the center and top part of the ingots that remain molten longest. It occurs in that part of the ingot in which the pipe or shrinkage cavity always forms and while both piping and segregation may be retarded or reduced in amount, the total elimination of these natural defects requires discarding the top of each ingot.

Obviously some difficulty exists in determining the amount of each ingot that should be discarded and sometimes when too little discard has been made shipments of segregated, and sometimes piped, rails unintentionally result. Segregation is always found in the top parts of the ingots, and therefore possibly in those rails that are lettered *A* or *B*, and defects of the character described as head failures are very largely confined to those rails. As might be expected, segregation results in a hard, high carbon core comprising the center of the rail section, surrounded by metal of lesser carbon content, and, therefore, softer. As mentioned, it may flow rapidly, especially on curves, it may mash down in spots and it may develop the actual cavity from which the term split head is derived. Split heads are not, as a rule, the same as piped rails, for pipes ought by all reason to be limited to the center of the ingot, and hence confined to the web of the rail, while splits are invariably found only in the head. Defects possessing these characteristics are not dangerous, but rails containing them should be watched carefully and replaced at an opportune time.

Web Failures

These failures are comparatively rare, consisting for the most part of the separation of the base from the head through some kind of longitudinal fracture in the web. Cracked webs can be observed by careful inspection and such rails ought to be removed. The defect often occurs at or near a joint, the fracture probably running into the bolt hole, possibly in such a way that the bars more or less shield it from view. Causes for such defects are not well known, but no doubt loose joints contribute their share, while on rails that have been shipped in vessels it is possible that some damage to the ends may have occurred in the process of loading and unloading that would account for failures of this type.

Rail failures are steadily on the decrease, recent statistics indicating that there were only one-fourth as many failures in five years on rails rolled in 1912 as there were in the same time on rails rolled in 1908. Last year there was approximately one failure for every two miles of track reported; that is, one failure out of every 600 rails of all makes, weights and conditions. Notwithstanding what records may show, we all know that the subject of defective rails is still a very serious one and that to meet it requires the fullest and most complete co-operation of everyone concerned. "Safety first" must be the motto and the price of safety is eternal vigilance, not only at the mills where the rails are rolled, but, also, in the track where the rails are used.

Inspecting Ties; the Outlook for an Adequate Supply

By John Foley

Forester, Pennsylvania Railroad, and Associate Manager of the Forest Products Section, United States Railroad Administration, Washington

The lack of a surplus of ties today is not a development of yesterday. Throughout the more than two years during which you have not had labor enough to put in all the ties

you desired, those who make a business of producing ties have been pleading shortage and high cost of labor as reasons why they were not meeting railway demands.

Coincident with the unified operation of railroads came complaints to the directors of regions producing ties in quantity, that the roads of other regions were taking ties needed by the local roads and by paying high prices for them were forcing the latter to unwarranted expense. The consequence of these complaints was the issuance last March of an order prohibiting the purchase of ties at prices in excess of those paid December 31, 1917. This order stopped the advancing of prices which was prevalent at that time. It also stopped the production of ties very largely wherever railroads which had advanced prices in 1918 reduced them to the 1917 basis. Many producers who quit then in resentment over the reduction have not resumed operations. Formerly, when an individual railroad reduced the prices of ties the owners of the ties could ship to a road which paid more. But when the reduction was general, many producers concluded they would engage in a more stable industry. Fortunately, all railroads did not reduce prices; some did not need to and some merely did not buy any until the matter was adjusted.

The ill effects of this order were soon apparent, and in April the prohibition was removed so far as the ties on a road's own lines were concerned. By that time the regional purchasing committees had been organized, and the result of their deliberations over ties was the formulation of the following principles to govern buying:

No railroad under control of the director general may purchase ties on any railroad under his control with which such road connects.

Any railroad under control of the director general may purchase ties on any railroad not under his control with which such railroad connects.

The prices shall be fixed on the various lines by the individual railroad companies, subject to approval by the regional purchasing committee, and at such figures as will cause the production of a sufficient number of ties to meet the requirements of all the railroads.

Every railroad should endeavor to secure the maximum output of ties on its line, so that its own requirements can be met with the minimum amount of transportation.

Ties on railroads which produce more than are needed, for their own use, should be transferred under the supervision of the regional committees to railroads on which a shortage exists.

Possibly some of the railroads which protested against shipments from their lines would not have done so had they suspected they would have been saddled with the responsibility and work in the above program. Some are saying they cannot spare any ties, but it is a fair assumption they can ship as many as contractors could under former arrangements. The principles laid down are the logical development of the idea that the railroads under government control are one. For them to compete with one another in the procurement of their ties would be as ridiculous now as it was unfortunate before.

The above rules to govern the purchase of ties were not well received by the tie trade. Naturally, the contractors who had been shipping from one railroad to another, at prices dependent on the necessities of the latter, felt that their business opportunities were lessened by the new plan. However, they advanced no reasons why they should not find entirely satisfactory the sale of their product to the railroad along which it was produced.

In working out the details of executing the above buying principles, the central advisory purchasing committee, in conference with the regional purchasing committees, decided that the fixed prices should be published and should apply to the ties of all purchasers, large and small. They also decided that payment for ties should be prompt—as nearly on a cash basis as was practicable under the conditions on each road. These decisions were welcomed by small producers of ties, but, of course, are objected to by those who dealt in the ties which the small producers may now sell direct. The attitude of the Railroad Administration is that the dealer is not barred by the present plan from selling as many ties as he can procure from those who require his assistance to make ties or to deliver them to a railroad. There is no limit to the quantity of ties which a railroad may contract to accept from any owner of them.

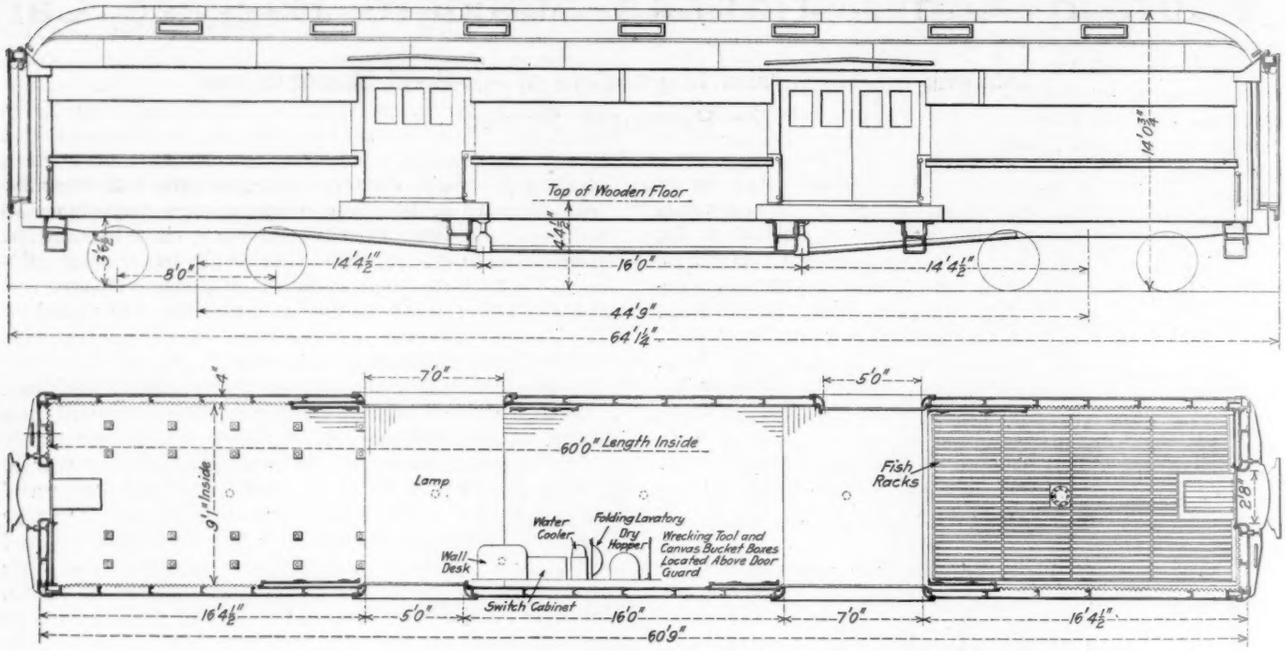
Gradually the feeling among tie contractors that the administration policy is antagonistic to them is disappearing. At first the contractors jumped to the conclusion that the railroads would develop organizations duplicating those of the contractors. This has not been done by the railroads which for years have bought under the present plan, and it is not contemplated, though advances in prices were quite generally made. You know the prices being paid along your lines and you have a good idea what ties cost to buy, make and deliver. If you are satisfied that the prices published are not sufficient to justify the production of ties, acquaint your responsible officials with the facts, since prices are "fixed by the individual railroad companies, subject to the approval of the regional purchasing committees."

Prices which bore some relation to one another could not be fixed for the various railroads until a standard was adopted. Consideration of this subject proved how timely was the statement made by a representative tie producer at the 1918 annual meeting of the American Wood Preservers' Association, that "there is another bad feature about the tie business. Every railroad has a different specification and none of them live up to it." Among 50 railroads which are representative of conditions throughout the United States, there were 30 different sizes and shapes of ties specified as standard. Each of these was known as one to five designations. Ties of exactly the same size would be 1's, 2's, A's B's on different roads. Different roads used the same designation for ties of different sizes.

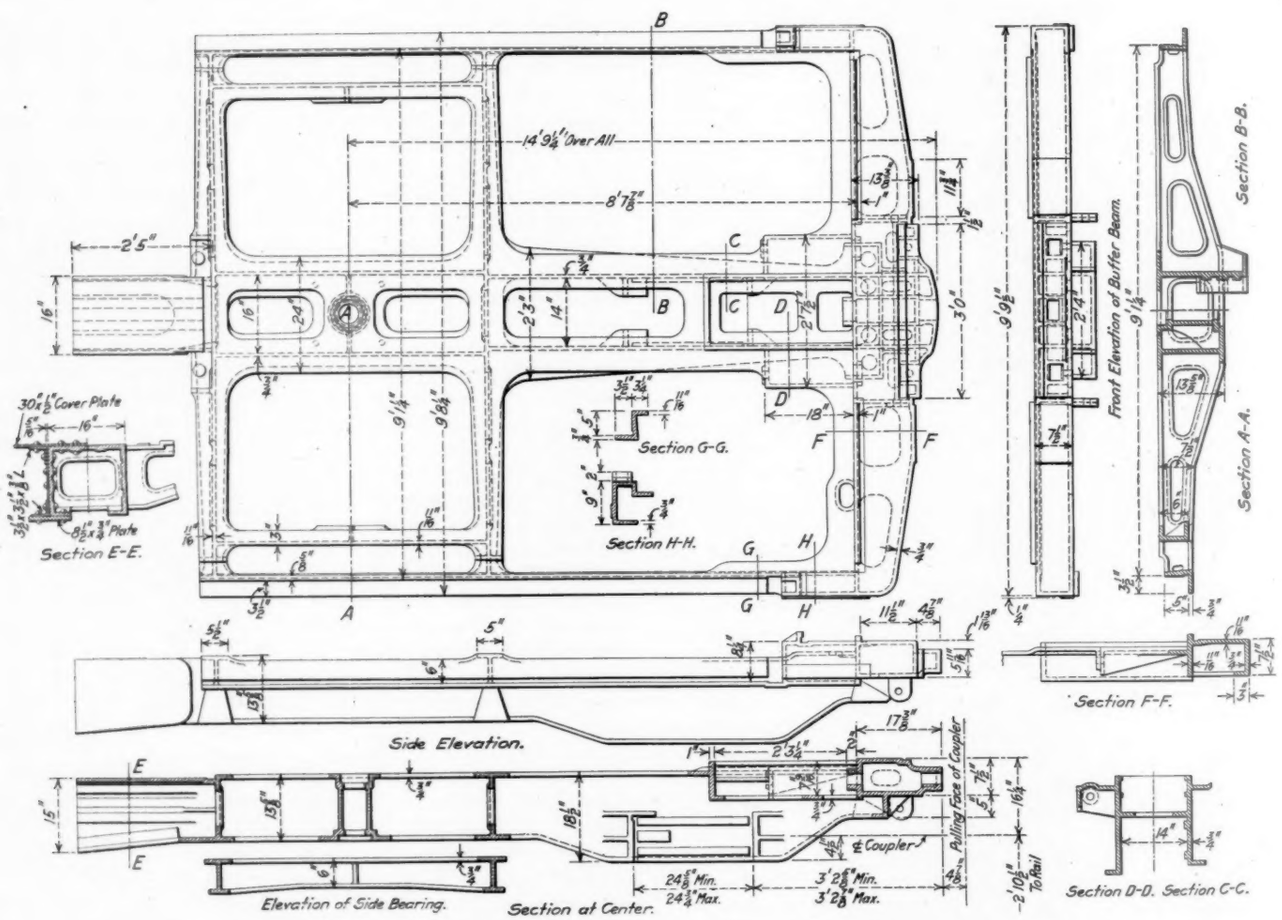
You have seen the standard specification which was adopted after full consideration of all existing standards at meetings throughout the country. It omits nothing which could not be agreed upon as essential anywhere. It includes nothing which cannot be lived up to everywhere, like making ties from live trees only, when, as a matter of fact, millions of excellent ties have come from wind-thrown pine trees in the South. It includes every kind of wood generally used for ties and provides for such others as may be locally desirable. The specification covers all the sizes of ties for which any real desire is expressed. It omits two American Railway Engineering Association standards, the 6-in. by 9-in., because only one railroad specified such a tie to provide for those not thick enough to be 7 in. by 9 in. and the 7 in. by 10 in. because ties of that size are not known in the trade, being manufactured at sawmills, and bought as lumber by the one railroad using them in quantity.

Ties smaller than the standard 6 in. by 6 in., which are fit for some service in secondary tracks, together with culls of larger size, are purchasable as "usable rejects," as heretofore. The desire is that no tie be wasted if it can be of use. The specification provides for the conservation of timber by including a graduation of sizes which will utilize with the least waste those portions of any tree large enough.

In conclusion, Mr. Foley placed special emphasis on the fact that the inspection of ties is to be done by employees on the individual lines along which the ties are produced. He urged that this inspection be made conscientiously, not only for those ties to be used on the home road, but for those to be shipped to other lines as well. As a check on this inspection, he urged the roads which are receiving poor ties to call the matter at once to the attention of the central purchasing committee. He stated that the government is giving the closest attention to the development of all possible sources of supply in this country and is also studying the possibility of importing ties. Based on reports from all sections of the country, he believed that the tie situation is now better than it was two months ago as respects quantity production and that better ties are being produced. While there may be some shortage next year, he did not believe that it would be as serious as is expected in some quarters.



Floor Plan and Elevation of the Standard Baggage Cars for the U. S. R. A.



Unit Cast Steel Double Body Bolster and Underframe End Construction

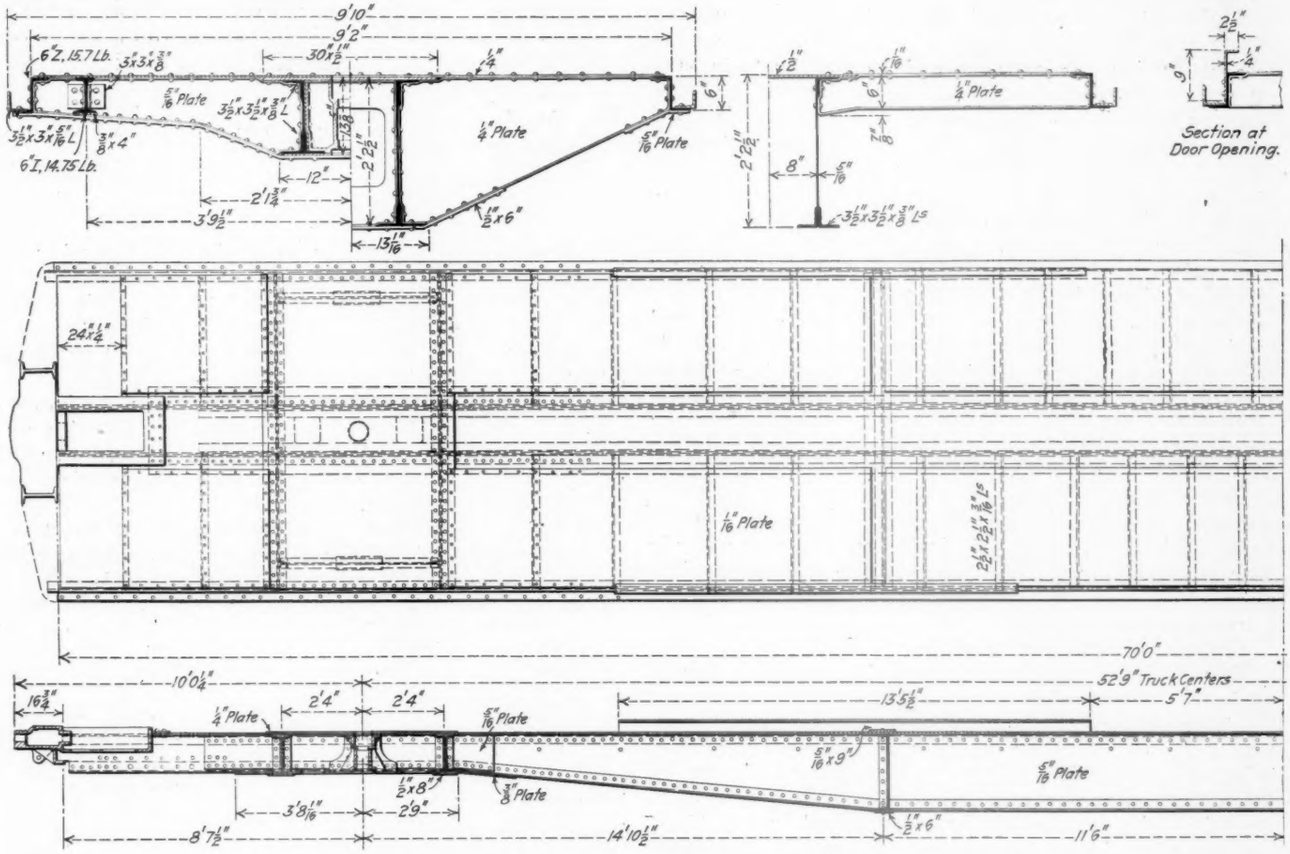
Railroad Administration's Standard Baggage Cars

Designs for 60-Ft. and 70-Ft. Cars of All-Steel Construction for Passenger Service

THE UNITED STATES RAILROAD ADMINISTRATION for some time has been working on the designs of two standard types of baggage cars, to be 60 ft. and 70 ft. long, respectively. These cars are of steel construction throughout, with the exception of the floor, and are generally similar in design. The side elevation and floor plan illustrated are for the 60-ft. car, while the details shown are those incorporated in the design of the 70-ft. car. The designs meet the Railway Mail Service requirements as to strength, and in some respects are stronger than called for by the Post Office Department specifications.

The underframe is made up of fishbelly center sills of the built-up type and Z-bar side sills. The center sill webs of the double body bolsters. The principal transverse members are built up of ¼-in., single flanged diaphragms with fillers of the same thickness between the sills, and have continuous top coverplates 9 in. wide by 5/16 in. thick. A ½-in. by 6-in. plate, about 55 in. long, is riveted to the bottom flanges of the diaphragms, the center sill fillers, and the center sill flanges.

The bolsters and end construction of the underframe may be either built-up or of unit cast steel construction. In the built-up underframe the center sills extend through to the end of the car body, the spring buffer casting being riveted between them. The transverse members of the double body bolster are each built up of two diaphragms of 5/16-in.



Underframe for the 70-ft. Standard Baggage Car with Built-Up Ends

are of 5/16-in. plate, spaced 16 in. apart and reinforced top and bottom with 3½-in. by 3½-in. by ⅜-in. angle flanges. At the top these angles are applied on the outside of the web plates only, while at the bottom they are applied both outside and inside. The center sill construction also includes a top coverplate 15 in. wide by ½ in. thick. At the deepest section the sills measure 26 in. over the flanges. This section is maintained for a distance of 11 ft. 6 in. either side of the transverse center line, at which points are located the main transverse members. At these members the reduction in the depth of the section begins and reaches the minimum of 12¾ in. over the flanges at the back side plate, placed back to back. A top coverplate, 5 ft. 9 in. wide, is riveted to the flanges of these members, the side sills and the center sills. From a point 16¾ in. forward of the front transverse member of the bolster to a point 24½ in. back of the rear transverse member, the center sills are closed by a ⅜-in. bottom coverplate. The lower flanges of the transverse members are reinforced by ½-in. by 8-in. plates, which are continuous from side sill to side sill. Side bearing supports are provided by 6-in., 14¾-lb. I-beams, placed longitudinally between the transverse members of the bolsters, 3 ft. 9½ in. on either side of the longitudinal center line of the car.

The side sills are 6-in., 15.7-lb. Z-bars, with the lower

flanges turned out. A 3½-in. by 3-in. by 5/16-in. angle, with the short leg turned up, is riveted to the lower flange of the Z-bar, the face of this angle serving as a means of attachment of the outside steel sheathing of the car.

Alternate types of construction are provided for the end frame of the car. This may be either a unit steel casting or built up of structural sections. The end frame of the built-up construction is designed to be of equal strength to that of the cast steel end, which is stronger than required by the Railway Mail Service specifications. The main vertical members are 12-in., 40-lb. I-beams, framed into the bumper casting at the bottom and built into a transverse girder at the top. There are four intermediate end posts of 4-in., 8.2-lb. Z-bars, two of which are to be omitted in working to Post Office Department specifications. The corner posts are built up of Z-bars, placed in the same position as the intermediate posts, and two angles which are so placed as to provide a means of attachment of the outside side sheathing and the inside end sheathing.

The side frame is made up of channel posts pressed from ⅛-in. steel. The side plate is a 4-in., 8.2-lb. Z-bar, placed with the web horizontal and the outside flange downward. The top of the belt rail is 3 ft. ¼ in. above the lower face of the side sills. It is made up of the 4-in. by ½-in. strip on the outside, riveted through to a 4-in. by 2-in. by ¼-in. angle on the inside of the sheathing. The sheathing is ⅛-in. plate, to the inside of which is applied ¾ in. of hairfelt insulation. The interior sheathing is No. 20 corrugated steel.

The carlines are of ⅛-in. pressed channel sections. On either side these are in one piece from the side plate to the roof of the clere story with a separate section for the latter. The roof is covered with copper bearing steel plates insulated inside and the ceiling is of sheet steel.

The underframe structure is covered with 1/16-in. steel plate, which is riveted to the center sill cover plate, to the side sills and to transverse supports flanged from ¼-in plate. On this is laid five 3-in. by 2⅜-in. intermediate longitudinal stringers with specially gained stringers over the top flanges of the side sills. Between these stringers the steel plate is covered with a ¾-in. layer of hairfelt, held in place by 1-in. by 1-in. wood strips placed against the stringers. On the stringers is laid a transverse floor of 13/16-in. by 5¼-in. material, finally surfaced with a maple floor of ¾-in. by 3¾-in. tongued and grooved material placed longitudinally except between the doors, where it is placed transversely.

The general arrangement of the 60-ft. and 70-ft. cars is similar. The 60-ft. car is carried on four-wheel trucks, while the 70-ft. car has six-wheel trucks. The trucks may be either of the built-up pattern or the cast steel frame type. In either case the general arrangement is the same, being of the equalized pedestal type. The wheels are 36 in. in diameter and are mounted on axles with 5-in. by 9-in. journals. The six-wheel trucks have a wheel base of 11 ft. and the wheel base of the four-wheel truck is eight feet. Both cars have two doors on each side, one having an opening of five feet and the other of seven feet. The side door on one side is placed opposite the narrow door on the other side of the car. In one end of the car a fish rack is placed over the floor, which is fitted with drainage facilities.

The 70-ft. cars are 70 ft., 9 in. long over the end posts and have a clear length inside of 70 ft. The uncoupled length over the diaphragms is 74 ft., 1¼ in. They are 9 ft. 1 in. wide inside and have a maximum width of 10 ft. ⅞ in. over the eaves. The maximum height from the top of the rail to the top of the roof is 14 ft. 13/16 in. The 60-ft. cars are 60 ft. 9 in. long over the end posts, have an inside clear length of 60 ft. and a length, uncoupled, over the diaphragm faces, of 64 ft. 1¼ in. The height and width clearances are the same in both cases.

Returns of Class I Roads for Calendar Year 1917

THE BUREAU OF RAILWAY ECONOMICS has issued a bulletin, No. 128, giving a summary of the principal railway statistics of Class I roads for the calendar year 1917. The figures are preliminary and tentative and are in some cases liable to correction and adjustment. An average operated mileage of 232,699 miles of line is represented in the statistics. The income account with comparisons for the previous year is as follows:

United States	Year ended December 31 1917	1916	Increase 1917 over 1916
Railway operating revenues	$4,012,968,828	$3,593,605,875	$419,362,953
Railway operating expenses	2,828,179,885	2,356,133,528	472,046,357
Net operating revenue	1,184,788,943	1,237,472,347	*52,683,404*
Railway tax accruals	214,096,050	156,966,020	57,130,030
Uncollectible railway revenues	698,724	821,865	*123,141*
Miscellaneous operating income	9,983,157	2,889,285	7,093,872
Total operating income	979,977,326	1,082,573,747	*102,596,421*
Hire of equipment and joint facility net rentals	Dr. 36,243,040	Dr. 41,963,035	5,719,995
Net operating income	943,734,286	1,040,610,712	*96,876,426*
Non-operating income	216,803,729	203,730,643	13,073,086
Gross income	1,160,538,015	1,244,341,355	*83,803,340*
Deductions from gross income:			
Interest on funded debt	404,313,382	406,441,179	*2,127,797*
Interest on unfunded debt	13,658,809	13,976,185	*317,376*
All other deductions	153,417,687	180,032,037	*26,614,350*
Total deductions	571,389,878	600,449,401	*29,059,523*
Net income	589,148,137	643,891,954	*54,743,817*
Disposition of net income:			
Dividend appropriations	222,378,713	175,107,298	47,271,415
Income appropriated for investment in physical property	47,242,473	61,750,678	*14,508,205*
Other income appropriations	25,582,319	47,892,603	*22,310,284*
Total appropriations of income	295,203,505	284,750,579	10,452,926
Balance to credit of profit and loss	293,944,632	359,141,375	*65,196,743*

The total capital securities outstanding on December 31, 1917, not excluding duplications resulting from intercorporate relations, amounted to $16,494,786,532. The equipment in service included 61,512 steam locomotives, 354 other locomotives, 2,329,683 freight train cars, 52,949 passenger train cars, and 99,616 company service cars.

The average number of general and division officers during the year was 18,465 and their total compensation was $57,224,997. The total number of employees, excluding officers, was 1,714,238 and their total compensation was $1,681,571,049, an average of $980.94.

Including the estimated road and equipment investment of non-operating subsidiaries, the approximate total property investment of mileage operated by Class I roads is given as $17,783,000,000.

In the following table are given some of the principal averages and ratios:

Average per mile of line:		
Operating revenues	1917	$17,281.06
	1916	$15,587.00
Operating expenses	1917	$12,179.00
	1916	$10,215.57
Net operating revenue	1917	$5,102.06
	1916	$5,371.43
Taxes	1917	$921.96
	1916	$680.63
Operating income	1917	$4,177.09
	1916	$4,687.36
Revenue ton-miles (freight density)	1917	1,697,961
	1916	1,571,175
Revenue passenger-miles (passenger density)	1917	169,973
	1916	150,002
Average per train-mile:		
Operating revenues	1917	$3.26
	1916	$2.94
Operating expenses	1917	$2.30
	1916	$1.93
Net operating revenue	1917	$0.96
	1916	$1.01
Average per freight car-mile:		
Revenue ton-miles (tons per loaded car)	1917	26.9
	1916	24.9
Miscellaneous averages and ratios:		
Operating ratio (per cent)	1917	70.48
	1916	65.54
Average receipts per ton-mile (cents)	1917	.715
	1916	.706
Average receipts per passenger-mile (cents)	1917	2.090
	1916	2.042

Railroads Organizing for Liberty Loan Campaign

Instructions Issued That No Effort Should Be Spared to Make Campaign An Overwhelming Success

THE RAILWAY MEN of the United States are out to make a new record for Liberty Bond subscriptions in the coming Fourth Liberty Loan Campaign. They subscribed for the first loan on a creditable scale, they doubled their first loan totals in the second campaign, and then they considerably more than doubled their second loan totals in the third campaign. If history repeats itself, as they say it does, the fourth loan totals are going to make the world sit up and take notice.

No stone is going to be left unturned to secure a big subscription. Under Director General McAdoo's leadership as expressed in Circular No. 56, the regional directors are instructing their federal and general managers to organize the railroads and as in the Third Loan campaign there will be a great number of committees reaching every man in railway service.

Circular No. 56

It is the intention of the director general that a copy of Circular No. 56 should be given to every railway man. The circular in question has two pages, the first reading as reproduced in the center of this page and the other giving the details of the loan and the methods of subscribing on the partial payment plan. Employees will be allowed to pay for their bonds in eight monthly payments, but in cases where third loan payments are still being made the eight months period may be dated from the first of the year. The full details are given in the circular as follows:

The Fourth Liberty Loan campaign will begin on Septemebr 28 and close October 19, and in order to encourage employees to subscribe thereto federal managers are authorized to take such amount of the bonds as may be necessary to care for such subscriptions, and current federal funds may be used as far as necessary in paying for such bonds. . . .

Officers and employees will be permitted to pay in installments covering a period of not exceeding eight months, provision being made so that such installments may be paid by deduction on the pay roll.

In connection with the Third Liberty Loan it was permitted that payments on new subscriptions might begin at the expiration of the period covering installment payments on subscriptions to the Second Liberty Loan, in order to avoid making payment on both subscriptions at the same time.

For that reason payment to the Third Liberty Loan in many cases will not be completed until June, 1919. Since the last loan, however, employees generally have received substantial increases in wages, and therefore it is unnecessary to avoid the making of payments on two subscriptions at the same time.

Payments on subscriptions to the Fourth Liberty Loan may, however, when the subscriber is also making payments on subscriptions to the Third Liberty Loan, commence with the month of January, 1919, the period of eight months running therefrom. In cases where employees are not making payments on subscriptions to Third Liberty Loan bonds, payments shall begin with the pay roll for the last half of October, 1918.

Employees will be credited with interest on bonds during the period of installment payments, and will be charged interest on deferred payment both at 4¼ per cent. When the last installment payment is made the bond will be delivered to the subscriber. Adjustment of interest will be made in the last month's installment payment. Coupon (covering interest which matures during the period of installment payments) will be detached by the federal treasurer and the interest collected. Subscribers will, however, receive proper proportionate credit on account of such coupons in the adjustment of interest to be made in the last installment payment, as described above.

Should employees leave the service before completion of the payments, the amount paid will be refunded without interest.

Employees may pay for bonds in full at the time of subscription; or, if they subscribe on the installment plan, they may at any time pay up the unpaid installments in full and receive the bonds.

Employees should not hesitate to place their subscription with the federal treasurer of the road on which they are employed for fear that their local district may not receive credit for subscriptions, for arrangements are being made so that the subscriptions of railroad employees will be reported according to their homes, and the local district will in each case receive corresponding credit to apply toward its quota.

Instructions are being issued to regional directors relative to the formation of committees, etc., to organize and promote this work, with which committee when appointed all railroad employees are urged to cooperate.

While bonds are being issued in both coupon and registered form, I advise and urge that employees subscribe for registered bonds, which in case of loss or destruction by fire will be replaced by the United States Treasury.

UNITED STATES RAILROAD ADMINISTRATION
OFFICE OF THE DIRECTOR GENERAL OF RAILROADS

WASHINGTON, SEPTEMBER 18, 1918

CIRCULAR NO. 56

The patriotic support of railway employees to the Third Liberty Loan was more than gratifying. On some railroads practically every employee became a subscriber for one or more of these bonds.

Now that the Fourth Liberty Loan is about to begin, I earnestly urge all railroad officials and employees to cooperate in securing a "100 per cent" result on every railroad. I believe that where the officials and employees unite in a patriotic support the response will be even more gratifying than that to the Third Liberty Loan.

I realize that there are many instances where railroad employees are not financially able to assume additional obligations. In such instances there should be no criticism of the failure of an employee to subscribe to the Fourth Liberty Loan. I believe, however, that when the urgency of the need is presented to employees that few will fail in their financial support of the Government.

My attention has been called to the fact that in the past loans many employees have subscribed through their banks and through other agencies than the railroads. No criticism should be made against employees for subscribing to bonds in this way, but it is a matter of pride to the Railroad Administration that the employees on each railroad shall receive the credit for all subscriptions they make.

Government bonds are the safest investment in the world, and in making such an investment railroad employees at the same time have an opportunity to help win the war and give needed support to our noble sons and brothers who are risking and giving their lives upon the battle fields and upon the seas.

I hope that 100 per cent of the railroad employees will subscribe to the bonds of the Fourth Liberty Loan. I can think of nothing more inspiring than the great body of railroad employees effectively banded together to work for the success of the Fourth Liberty Loan, and I urge upon each railroad employee patriotically to do his share. In this way we can shorten the war, save many lives, and bring a glorious victory to America and to democratic principle everywhere.

W G McAdoo

Director General of Railroads.

Instructions to Regional Directors

In addition to sending out the circulars the director general has sent a letter to all regional directors instructing them further concerning the extensive and intensive campaign for Loan subscriptions. This letter reads in part as follows:

I enclose herewith a copy of circular No. 56 regarding subscriptions of railroad employees to the Fourth Liberty Loan. A supply of these circulars is being sent to you, for the use of your immediate staff, and *a supply is being sent directly to all the federal and general managers.*

Please instruct the distribution and bulletining of these circulars in order that they may come to the attention of all railroad employees.

Please also instruct federal managers in your jurisdiction to promote the organization at once of Fourth Liberty Loan Committees to encourage officers and employees of your region to subscribe to the approaching Liberty Loan. These committees should co-operate with the regularly constituted committees of the Liberty Loan Organization.

Arrangements should be made so that subscriptions of employees will be classified according to their residences. The amount in the aggregate subscribed by employees of each particular federal reserve district should be subscribed with the reserve bank for that district, accompanied by a list showing the amount of each subscription and names of subscribers arranged according to the residences of the subscribers, so that each local community may be properly credited therewith.

No deduction or allowance shall be made from the amount of subscriptions of employees, filed with the federal treasurer, on account of possible discontinuance of payments by employees, but on the contrary, the subscriptions of the federal treausrer to the federal reserve bank (or banks, if his road lies in more than one federal reserve district) shall in the aggregate equal 100 per cent of the subscriptions of officers and employees filed with him.

There are enclosed herewith the following forms which are suggested for use in furthering this campaign:

(a) Form of circular to be sent by you to federal managers instructing the organization of committees and other features of the campaign.

(b) A form of circular to be distributed to officers and employees, by federal managers.

The attached circulars and forms are intended as suggestive merely and are not to preclude the expression of individual initiative.

My attention has been called to the fact that in past loans many employees have subscribed through their banks and through agencies other than the railroads. No criticism should be made of employees for thus electing to subscribe for bonds, but it is a matter of pride to the Railroad Administration and to each railroad if the employees on that railroad receive the credit for all the subscriptions they make.

The Fourth Liberty Loan campaign is as important as the great battle now being fought in France. Everything possible should be done to bring the situation home to each railroad employee. Once this is done I know they will respond even more patriotically than they have in previous loans. Let us roll up a total of railroad subscriptions that will serve notice on Berlin that the railroad employees of America are in this fight to a finish.

Instructions to Federal Managers

Each regional director is doing his part to help the campaign along and long letters of instruction have been sent to every federal and general manager the country over. In addition to suggesting methods of appeal to the men, and directing the prompt printing of circulars, subscription blanks, etc., these letters have advised the federal and general managers concerning the form of organization and procedure which should secure the best results. The eastern regional director in his letter emphasizes that, "No effort should be spared to make this campaign an overwhelming success." He has detailed the following as the best method:

The best methods for securing the maximum results in this campaign have been carefully considered, and it has been determined that the following form of organization should be immediately formulated upon each railroad and substantially the same methods and procedure will be followed by all lines in this region.

All committees should co-operate fully with regularly constituted committees of the Liberty Loan organization. The importance of the work should be thoroughly impressed upon all.

I. *General committee.* Headed by the federal manager or other executive officer designated by him, who will issue necessary instructions and who, will select other officers and employees to serve on this committee with him.

II. *General office committee.* A general officer to be designated by the federal manager who will be assisted by a committee made up of general officers and employees who necessarily must devote a portion of their personal effort to this work. This committee in turn shall appoint captains under their jurisdiction in the various general office departments.

III. *Divisional committees.* Three or more representative division officers and employees.

While these officials and employees can devote only a portion of their personal time to this work they must realize the importance of the ultimate success of this Liberty Loan campaign and should follow up daily the work of such captains and leaders under their jurisdiction in the respective branches of the service as they may think it wise to appoint. It is suggested that representatives of the various crafts and classes of employees be utilized to the fullest extent in the furtherance of this campaign.

IV. *Terminal committees.* These committees should be composed of three or more officers and employees.

V. *Shop committees.* A committee should be established at each shop composed of three or more of the officers in charge and employees. It may be necessary that further sub-committees be appointed in the mechanical department to cover all outlying shops and the numerous sub-committees and captains thereof should be appointed in all large shops and repair yards.

VI. *Divisional committees.* The divisional committee shall see that all other classes of employees not specifically covered herein are properly organized under their jurisdiction.

It is the intention that every employee of the railroad shall be personally urged to subscribe for as large an amount of Liberty Loan Bonds as possible. It is important that no employee should be overlooked and that they should be solicited repeatedly by the captain or leader having jurisdiction until such subscriptions as they may be willing to make have been secured.

A daily record should be made and turned in to each of the sub-committees, and in turn to the general committee, showing the amount of subscriptions received for the day. As these records are turned in from day to day to local committees, renewed efforts should be concentrated upon all employees not making subscriptions or not making sufficiently large subscriptions.

In all solicitations of subscriptions, observe carefully the intention of the director-general as contained in Circular No. 56. While it is desirable to urge employees earnestly to subscribe, every employee should be allowed to feel that he is a free agent and that his action is not being influenced by the fear of coercion or the fear of criticism.

Daily telegraphic or telephone reports should be made by the general committee of each carrier as to the results being secured on their respective lines to the undersigned, and for that purpose it will therefore be necessary that all the general committees, sub-committees, team captains, etc., shall make daily reports to the officers under whose jurisdiction they are working. In this manner, all concerned will be thoroughly acquainted with just what progress is being made and the further efforts which are essential to bring about the desired results.

Complete instructions and forms for recording the subscriptions, making payroll deductions and remitting the amounts collected should be issued by the appropriate officers of each railroad.

Federal treasurers should be instructed to place subscriptions with federal reserve districts according to the residences of subscribers, at the same time filing with the federal reserve bank of the district in which the subscriber resides a list of the local committees, the amount of subscriptions which should be properly credited to each and the names and the amounts of each subscriber making up such subscription.

Federal treasurers will be authorized in due course, under proper regulations, to use, as far as may be necessary, current funds on hand for the payment, as the same become due, of the installments on the bonds subscribed for.

All subscriptions received from railroad employees will be credited to the local committees according to the residences of subscribers. Inquiries from local banks should be answered in line with the foregoing.

Railway Business Association Activities

THE REGULAR QUARTERLY MEETING of the general executive committee of the Railway Business Association was held at the Chicago Club, Chicago, on September 18, with President Alba B. Johnson in the chair.

Railways After the War

W. W. Salmon, chairman of the committee on railways after the war, presented a plan of work for this committee which was approved by the general executive committee. Mr. Salmon's report was as follows:

"Your committee enters upon its work completely unhampered by any declaration of our association in favor of specified policies or measures. The one dogma by which you are bound is that the public interest is paramount. I am sure I shall have the generous support of the general executive committee and of the association at large in proposing that your committee establish its program upon the highest plane of effectiveness possible to you with available resources. This work has been undertaken because we believe it vital to the well-being not only of our own group of industries, but of the nation. It is the purpose of the general executive committee to afford you the fullest measure of relief from personal labor through staff and special service."

Chairman Salmon suggested that it would be valuable for each member present to volunteer any ideas he might have as to the purpose to be sought by the committee and the method to be pursued. The consensus of impressions thus elicited was that in view of the complexity of the subject, any arrival at conclusions should be preceded by the most thorough examination of material, consultation with specialists and detailed committee conference.

The secretary presented a report, prepared at the request of Chairman Salmon, comprising some account of the material which the office has been preparing. The first step was the compilation of a card catalog of books, pamphlets, magazine articles, and newspaper clippings, the titles of which suggest that they might have a bearing upon the subject. This list includes about 400 titles. The second step was an endeavor to determine in advance what to look for in this mass of material. This object was approached by drawing up a rough list of the phases which a responsible legislator would have to deal with if he were drawing a bill. When such a list shall have been discussed and revised by the committee and by the members of the association, the result would be a program of subjects to be studied.

The association, under that plan, could proceed to extract from the books and other documents in the catalog material bearing on each of the listed aspects and to classify it for practical use. When this task had been completed the committee could take up these subjects, one by one, with the mate-

rial bearing upon it and with the aid of well-informed persons each at the appropriate stage.

Meantime, a widespread dissemination of the list of aspects could be made with a view to obtaining guidance as to the prevailing public thought. It need hardly be expected that general public opinion will yet be found very clear or positive. What we may hope for is a response indicating which are the phases that are regarded by the public as most important for them to be enlightened upon.

Touching the question of co-ordinated effort, it is the view of some that the outcome of the proposed railroad conference authorized by the Chamber of Commerce of the United States to be called by the directors should be some form of federated activity independent of the National Chamber and giving opportunity for occupational and other organizations, including the Railway Business Association, to co-operate for the common end.

It was decided to take up in future meetings, topic by topic, the aspects as they have been developed by the association office research.

Government Purchasing Policies

A. L. Humphrey, chairman of the committee on government purchasing policies, reported progress in several of the matters which members have requested the committee to take up with the Railroad Administration. The Division of Finance and Purchases in various conferences has shown a disposition to give careful consideration to subjects laid before it by the committee. Responsive to suggestions concerning prompter remittances by railroads for goods delivered members are reporting substantial improvement, especially in the clearing up of the oldest accounts. In the matter of the warranty covenant against commission agents required by the Department of Justice in government contracts, the Railroad Administration has decided to ask for a modification as affecting railroad transactions, and has made it evident that it will press its request vigorously. Railroad purchases are more complex than those covered by previous modifications, namely, fuel and certain textiles for the army quartermaster, but it is believed a method is being worked out which will permit legitimate commission selling in the railroad field while eliminating what is regarded as illegitimate.

Other Business

The secretary was requested to notify the honorary vice-president, Mr. Post, and to spread upon the minutes for reference as affecting future honorary vice-presidents, that the intention of the committee in creating that office was not only to honor retiring presidents, but also to obtain their counsel and that it is the earnest desire of the committee that the honorary vice-president shall attend as many meetings of the general executive committee as he can.

The following new members were reported since the last meeting: Buffalo Wire Works Co., Inc., Buffalo; Joliet Railway Supply Co., Chicago; A. G. A. Railway Light & Signal Co., Elizabeth, N. J.; Keyoke Railway Equipment Co., Chicago; Chas. R. Long, Jr., Co., Louisville; Chicago Bridge & Iron Works, Chicago; Kearney & Trecker Co., Milwaukee; National Waste Co., Philadelphia; Liberty Steel Products Co., New York; and Seeger-Walraven Co., Atlanta.

The committee on finance and administration, in a communication from Chairman H. H. Westinghouse, reported a budget which was approved.

Decision was postponed as to the character, time and place of the next annual meeting.

Safety Council Discusses Conservation of Man Power

Unification of Safety Work Under Federal Control Adds New Interest to Railway Session

THE SEVENTH ANNUAL CONGRESS of the National Safety Council was held at the Hotel Statler, St. Louis, Mo., on September 16 to 20, inclusive. The Steam Railroad Section of the council convened on Tuesday afternoon, September 17, with H. J. Bell, safety supervisor of the Northwestern region, in the chair, and remained in session for three days as this meeting was the first under government control and the first since the unification of safety activities on American railroads, it marked the beginning of a new and distinct period in safety work.

The principal address of the first day was by H. W. Belnap, manager of the Safety Section of the Railroad Administration, who outlined in considerable detail what is expected of the railway safety organizations in the promotion of safety work. His speech was of especial significance to those present as a pronouncement of the policy of the Railroad Administration with regard to the conduct of safety work. Members of the Railroad Section were gratified to learn that the government intends to pursue a vigorous safety campaign in order to conserve human life as effectively as possible during a period of incessant drain on the man-power of the nation. Not only was this idea emphasized by Mr. Belnap, but it was very forcefully expressed in a telegram received at the congress from W. G. McAdoo, the director general. He said in part:

> Today man power means so much to the safety of the nation that the conservation of the health and promotion of safety, not only of the workers on our railroads but in all industries, stands as a patriotic duty as well as an economic necessity. Effective accident prevention work on all railroads under federal control is therefore one of the important activities of the Railroad Administration.

What the Railroad Administration Expects of Railway Safety Organizations

Mr. Belnap's address was in part as follows:

It has often been stated that the accidents which swell the total are caused by the negligence of the injured employee. A general assumption of that nature is absolutely unwarranted. Men cannot properly be charged with willful negligence in case of injury until it is clearly established that proper instruction and supervision have in each instance been given to the injured employee, and I am convinced if a careful study is made of each accident, it will be found in thousands of cases that this very lack of instruction and supervision has had an important if not a controlling influence in the occurrence of the accident. . . .

To gain the confidence and good will of all officers and employees in railroad service, it is absolutely essential that a real and constructive safety campaign be energetically carried on, if accident prevention work is to be a success. For the purpose of standardizing this work as far as it is possible and practicable to do under date of May 27, Circular 5 was issued, directing that each railroad under federal control organize a general or central safety committee, as well as safety committees on each division and in the principal shops and terminals, these latter committees to

be composed of both officers and employees, the superintendent of the division to be chairman of the division committee and the ranking officer in each shop or terminal to be chairman of those committees.

This organization became effective on August 1, 1918. . . . It is realized that local conditions on the different railroads must be taken into consideration, and that they govern, in a measure, the plans and activities of each safety organization. What is expected briefly summarized is:

1. That all officers in executive positions shall give safety work their active co-operation; that they shall regard it as of the same importance as other branches of railroad work, and that they shall take an intensive interest in it and do everything they consistently can to make it successful.

2. That the fundamental principles of safety shall be wisely and energetically instilled in the minds of the men who do the actual work of operating the railroads, and they all shall become imbued with the importance of safety, knowing that since it is they who are killed or injured, all employees must take an active interest in the work and understand from instruction and practice that proper observance of the requirements of safety is a work of the men, by the men, and for the men.

3. That the proper officers of railroads shall give attention to all reasonable and practical suggestions and recommendations made, in order that unsafe conditions and unsafe practices may be promptly eradicated. In each instance proper acknowledgment of suggestions and recommendations shall be made to the end that those making them may be apprised as to their disposition and of the fact that due consideration was given to such suggestions or recommendations.

4. That officers and employees shall co-operate to the maximum and that proper efforts shall be made to get all to realize that in safety committee meetings officers and employees meet on a common level—all being members of the committee, and each having an important duty to perform in the prevention of avoidable accidents. . . .

Mental Safety

L. Kramer, federal manager of the St. Louis-San Francisco and the Missouri, Kansas & Texas, addressed the Railroad Section on the subject of Mental Safety. Among other things he stated that no individual is the master of his own destiny, but a great organization composed of men, all thinking along safe lines, can prevent injuries, much suffering, loss of time, money and lives. If railroad men as a whole would exercise their minds as much as they do their jaws, and develop their mentality as well as their muscles, the claim departments could be abolished, the hospitals used only for medical cases and much human suffering would disappear from the homes of employees.

A Conductor's Part in Accident Prevention

This was the subject of a paper by J. C. Clark, assistant to the general manager, in charge of safety, on the Oregon Short Line. He said, in part:

Some time ago two trains had a meet at a siding located on a grade of about one per cent. The train going up grade had right of track, arrived at the siding first and stopped on the main line between switches. The train coming down the hill was unable to stop for the switch, and struck the train standing on the main line. The conductor was a man of long experience, and he knew that the engineer was not entirely familiar with that district, so he was riding the engine. When about one mile from the side track, where the other train was standing, he told the engineer that he was running too fast, and that he had better begin to slow down for the switch. The engineer, however, drifted some distance farther before applying the air brakes, and as a result collided with the opposing train. . . . The conductor knew the engineer was using poor judgment, but he hesitated to exercise his authority as the conductor of the train, and a few seconds' hesitation in this particular instance resulted in a serious accident.

All members of a train crew, especially if they are experienced men, are quick to see the possibilities of an accident, but there is a great tendency on the part of many of them to take a chance. It is up to the conductor, as the responsible man of a crew, to see that no chances are taken. As a rule, the conductor will act promptly to avoid hazards, but if his will or judgment is opposed by the engineer or the brakeman he is apt to hesitate too long. I think, in some cases, this hesitation is due to the fact that the conductor and engineer are held equally responsible for the observation of a large number of the operating rules. . . . I believe better results could be obtained by putting the responsibility of operating a train squarely up to one man.

In discussing Mr. Clark's paper, J. L. Walsh, superintendent at Dallas, Tex., on the lines under J. S. Pyeatt, federal manager, emphasized the duty of conductor to the public. Freight conductors, in particular, should notify shippers and consignees loading or unloading cars, when trains are to be moved.

Fundamental Principles of Safety

As the Safety Section of the Railroad Administration has undertaken to establish a safety organization on every large railroad in the country and, therefore, all railroads alike are interested in safety, it was deemed advisable to present for the consideration of the Steam Railroad Section, certain general features of the subject that are basic or fundamental with the view of suggesting an outline of procedure that may be employed by all railroads in accident prevention work. These were covered thoroughly and concisely in a paper by T. H. Carrow, supervisor of safety of the Pennsylvania Railroad, Eastern Lines.

Getting Close to Men; Intensive Instruction by Foremen

C. W. Hammond, division safety agent of the New York Central, Cleveland, Ohio, read a paper on this subject, an abstract of which follows:

I know one foreman in my district who has had as many as four different gangs of men to supervise in one week. When Saturday night came he was the only man left to talk safety to. I have also seen 46 new men arrive one night at one of our camps used for housing track employees and at 6 o'clock, after breakfast, of course, there were only seven men to go on the job. You hardly have a chance to talk safety to these men, for as a rule, they are a safe distance away. . . .

I believe that the foreman of track employees should be a man who will not only be able to talk safety to his men, but be able to compel them to exercise caution at their work. This is sometimes rather a hard thing to do, as I have seen four different nationalities working under one foreman, he being the only man who was able to speak the English language. This does not happen often, I find, and I believe it would be much better to separate the different nationalities that safer and more efficient service may be obtained. . .

There is, perhaps, no better time to teach safety than before starting to work in the morning or at noon. If you want to touch a man along almost any line you can get the best results when he has a full stomach; therefore I find that noonday meetings are most successful to carry home safety ideas. . . . Another way of teaching safety to groups of men is to talk to them at their respective lodge meetings.

Maintaining Interest in Safety

J. A. Doyle, safety inspector on the Chicago, St. Paul, Minneapolis & Omaha, presented a paper on this subject, reading in part substantially as follows:

The practice on our line, and on a number of other lines, of requiring an applicant for a position to fill out a questionnaire referring to the principles of safety, is an excellent plan. It brings the matter to the man's mind at a time when he is willing to accept and agree to carry out the principles of safety in order to secure a position, and he is made to feel that compliance is necessary in order to hold the position after he gets it. The questionnaire exacts promises from him that he will avoid certain dangerous practices; that he will at all times look out for his own safety, as well as that of his fellow workers. . . .

The older men among the general employees are harder to win over. They are of a "show-me" disposition, and, while the unconverted on our line are small in number, we are continually trying to "show" them. Their confidence must first be secured and all suspicion wiped out as to safety work being an annex of the claim department, etc. . . . The safety meeting is the place where most men are won over to the cause, though I sometimes feel that interest is lacking at these meetings for different reasons. One reason is, that the same line of procedure is followed meeting after meeting; another is that often many who are present cannot grasp sufficient knowledge from the discussion to permit of their entering into the work intelligently. I think that if a novelty—something out of the ordinary—would be introduced occasionally, it would stimulate interest. Plan debates on safety matters. To make it possible for all present at safety meetings to understand fully the matter which might be before the meeting, it is a good plan to have a small blackboard in every meeting place.

Prevention of Accidents in Yards, Especially Hump Yards

C. B. Floyd, assistant to the general safety agent of the New York Central Lines, spoke on this question. He said, in part:

Men responsible for the general conditions of yards must be trained to the necessity of having the yards, as regards tracks, lights, obstructions, etc., in good order; every reasonable precaution against defects in equipment should be taken before cars are sent up to be humped; the rider should be assured as to the conditions of brakes, making a personal test of them while cars are in motion coming up the hill before being cut off. The cut-off man should make sure the rider is ready before making the cut; no cars should be cut off unless there are men enough aboard to properly control them, and numerous other precautions should be taken with which we are all more or less familiar. One very important feature, I think, is the kind and make of club supplied. Every care should be used in selecting these, more particularly as regards the kind of material, shape, length, etc.

L. G. Bentley, secretary of the general safety committee of the Chesapeake & Ohio, led the discussion on Mr. Floyd's paper. He stated that the handling of coal in hump yards was particularly dangerous because of the obstruction of tracks and injuries to employees from falling lumps. C. W. Hammond stated that lights were placed at the end of yard tracks on the New York Central at night so that car riders would be able to gage the proper time at which to apply brakes. The brake club, exhibited by Mr. Floyd, brought out a diversity of opinion on the proper shape of a club. It was agreed, however, that brake clubs should be of substantial material to prevent the possibility of sustaining injuries through breaking them.

Prevention of Accidents Due to Coupling and Uncoupling Cars

E. M. Switzer, superintendent of safety of the Chicago, Burlington & Quincy, presented a careful study of this subject, an abstract of which follows:

In the five years ending June 30, 1917, 735 railroad employees were killed and 12,702 were injured in coupling accidents. These constitute six and one-half per cent of all accidents to men in train service in the United States, including train accidents. Of all fatalities to train service employees, 11 per cent are due to coupling accidents. These statistics indicate that accidents in coupling and uncoupling cars constitute a considerable part of all accidents to trainmen and that a larger proportion of them result in death and, no doubt, in total disability than other kinds of accidents.

A common cause of coupling accidents is the practice of kicking drawbars while cars are coming together. Probably every railroad having a safety organization has issued instructions against it. That the campaign against the practice is succeeding, if slowly, is attested by statistics for the past five years. Whereas in 1913, 259 accidents were due to this cause, the number was reduced materially in the ensuing years, being only 180 in 1917, or 25 per cent less than five years previous.

Other important causes of coupling accidents are as follows:

1. Adjusting couplers when cars or engines are accidentally started.
2. Pulling the pin by hand without using the uncoupling lever.
3. Misjudging the speed of cars when opening or closing knuckles.
4. Misjudging the adjustment of slack in a train.
5. Losing footing while uncoupling moving cars.
6. Going between cars unnecessarily and contrary to rule.

L. F. Shedd, safety agent of the Chicago, Rock Island & Pacific, read a discussion of Mr. Switzer's paper. He emphasized in particular the necessity of regular inspection of equipment to discover defects likely to cause injury. In addition, it is important that every trainman and switchman be his own inspector. He asserted that it is possible through constant efforts to induce the men to exercise care in this regard. He cited the record of Rock Island switchmen in the Kansas City Terminal, as testimony to increased carefulness on their part. In seven successive months, not a single switchman was killed or injured.

Other Papers

Accident Prevention for Trackmen.—This subject was covered exhaustively in a paper by Robert Holland, division roadmaster of the St. Louis-San Francisco, Neodesha, Kans. He enumerated 28 distinct dangerous practices in track work which should be eliminated in the interest of safety. In the unavoidable absence of Mr. Holland, his paper was read by F. Whittemore of the Nashville, Chattanooga & St. Louis.

W. W. Fuller, supervisor of safety of the Seaboard Air Line, read a discussion of Mr. Holland's paper. The prevention of accidents to trackmen in the South, he said, was a particularly difficult problem because of the ignorant and irresponsible type of laborers, largely negroes, upon which the railroads have to depend.

Successful Methods of Securing Attendance at Safety Meetings.—In an address before the congress as a whole on September 17, Marcus A. Dow, general safety agent of the New York Central lines, outlined the methods he has used with success in securing good attendance at large safety meetings or rallies open to employees in general and their families. Success in these undertakings, he said, depended upon three things: namely, a good program, effective advertising and the co-operation of officials. He described in detail how these ends were achieved.

General Discussion

In the general discussion which followed the regular program of the Railroad Section, considerable attention was given to the advent of women in railroad work and the steps which are being taken to provide for their safety. In shops on the Pennsylvania Railroad, a matron is provided wherever women are employed and in addition two women have been placed on each first aid team. On the Baltimore & Ohio women engaged in hazardous occupations are required to wear a standard one-piece garment, a standard flat-heeled shoe and a standard cap.

Through the courtesy of Marcus A. Dow of the New York Central Lines, the safety films, "The House That Jack Built" and "The Rule of Reason" were shown at the meeting.

Election of Officers

R. C. Richards, chairman of the central safety committee and general claim agent of the Chicago & North Western, was elected chairman of the Railroad Section for the ensuing year to succeed H. J. Bell. J. T. Broderick, supervisor of special bureaus of the Baltimore & Ohio, was elected vice-chairman, to succeed T. H. Carrow, and F. Whittemore, superintendent of safety of the Nashville, Chattanooga & St. Louis, was elected secretary to succeed C. M. Anderson, supervisor of safety in the Southern region. Twenty-five new members were admitted to the Section during the past year and many more are expected to join in the coming year as a result of the action of the director general in authorizing railroads under federal control to support memberships in the Council. Over one hundred were present at the first session of the section and the attendance continued good throughout the entire convention.

Exhibits

Exhibits of devices of interest to railroads were shown in the hotel by the following companies:

E. C. Atkins & Co., Indianapolis, Ind.—Saw guard.
Dreger Oxygen Apparatus Co., Pittsburgh, Pa.—Pulmotors.
Endicott-Johnson & Co., Binghamton, N. Y.—Safety shoes.
Glauber Brass Mfg. Co., St. Louis, Mo.—Drinking fountains.
F. A. Hardy & Co., Chicago, Ill.—Safety goggles.
Howe Safety Appliance Co., Granite City, Ill.—Machine guards.
Improved Aluminum Gasco Protector Co., Waukegan, Ill.—Gas masks.
H. D. Lee Mercantile Co., Kansas City, Mo.—Overalls.
Life Saving Devices Co., Pittsburgh, Pa.—Lungmotor.
Mine Safety Appliances Co., Pittsburgh, Pa.—Miscellaneous safety devices.
Protective Signal Mfg. Co., Denver, Colo.—Manufacturing protective signals.
Safety First Supply Co., Pittsburgh, Pa.—Miscellaneous safety devices.
Safety Service & Supplies Co., Chicago—Miscellaneous safety devices.
Sargent Company, Chicago—Safety water gage.
R. P. Smith & Sons Co., Chicago.—Safety shoes.
D. Square Co., Detroit, Mich.—Safety electric switches.
Standard Optical Company, Geneva, N. Y.—"Stoco" glasses.
Stonehouse Steel Sign Co., Denver, Colo.—Safety signs.
Strong, Kennard & Nutt Co., Chicago—Miscellaneous safety devices.
Surety Guard Company, Chicago—Machine guards.
Sweet-Orr & Co., Inc., Chicago—Overalls.
Trumbull Electric Co., Plainville, Conn.—Safety electric switches.
Utility Garment Co., Chicago—Overalls.

Unified Operation of Railroad Terminals

THE YARDS AND TERMINALS committee of the American Railway Engineering Association has issued a preliminary report on the "Unit Operation of Railroad Terminals in Large Cities," which is published in bulletin 208 just issued. This report contains a catechism on the unit operation of terminals with appendices on "Unified Operation of Terminals," by John F. Wallace; "Unit Operation of Large Terminals," by H. J. Pfeifer, chief engineer of the St. Louis-East St. Louis Terminal District; and "Improvements in Operating Methods of Intermediate Transfer Railroads," by E. H. Lee, president of the Chicago & Western Indiana. An abstract of this report follows:

Fundamental Principles

Under the unification of terminals are the following fundamental principles, which must be understood and applied:

(1) A terminal is a clearing point and not a storage point.

(2) Each and every facility within the unified terminal limits must be considered absolutely a part of the whole plant. The word "facility," as used, includes "man-power."

(3) The use of each part must be co-ordinated with a view to its effect upon the best use of the plant as a whole.

(4) Each individual operating organization must be co-ordinated and directed under one head.

The full application of these principles should give the most economical operation of the plant. By accomplishing the most expeditious and efficient movement of cars: by avoiding duplications, as in switching, clerical and other work, and of facilities; and by employing man-power as well as physical facilities and mechanical power to capacity, where and when necessary.

As prerequisites to terminal unification, the following information should be obtained and analyzed:

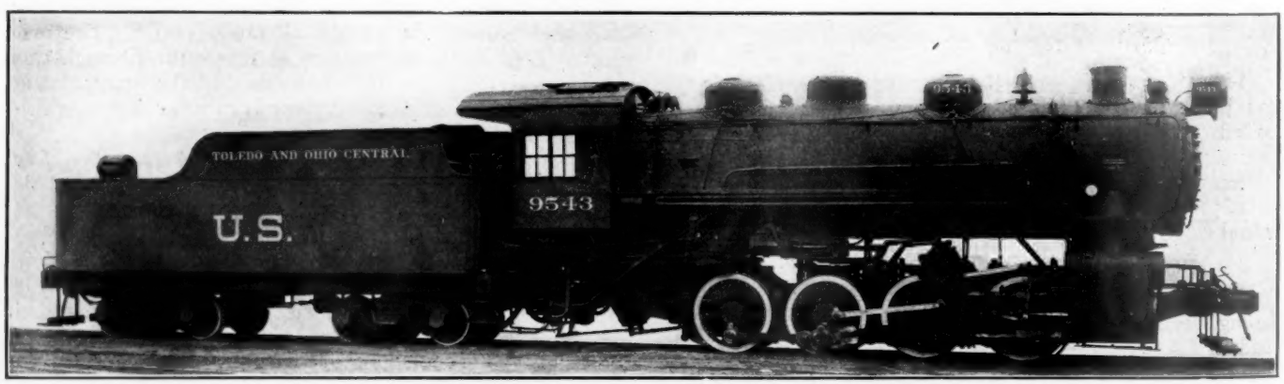
(1) A situation or key map on a small scale showing or indicating: (a) The entering lines; (b) The terminal facilities of each line; (c) The interchange connections and junction points of the lines in the district to be unified; (d) The location and capacity of yards; engine terminals, including coaling and water stations, cinder pits, sandhouses and engine parking tracks; freight houses, transfer platforms and team-tracks; (e) The location and track capacity of large industries and private warehouses.

(2) Larger scale maps, indicating the facilities of each road, in sufficient detail, for critical study.

(3) Topographical maps of the territory, where necessary.

(4) Record of traffic handled by each line, divided: (a) As to local or through, as referred to the district; (b) As to prevailing and possible routing; and (c) As to preponderance of direction of tonnage due to commodities and seasons.

(5) Outline of present method of operation, considering:



The First Eight-Wheel Switcher for the United States Railroad Administration

Note—This locomotive was built by the American Locomotive Company, and was described in the *Railway Age* of September 20, page 542

(a) General movement; (b) Transfer or interchange movement; (c) Use of individual facilities, yards, engine facilities, freight houses, etc.

(6) It is the thought that the investigation of and recommendation for any terminal unification should be made by a representative committee composed of representatives of all departments—transportation, engineering, mechanical and traffic officials, including, where complex situations are involved, at least two members from other locations than the terminal under study.

Catechism on Unit Operation of Railroad Terminals

In the operation of the unified terminal facilities, the load should be distributed evenly among all units so as to secure their constant normal use at the most intense efficient rate, coupled with the avoidance of any excess peak load on any unit, treating both the individual carrier's terminal and the unified terminal always as a part of the railroads as a whole.

Certain captions under which improved conditions may be obtained by unification have been selected and, while constantly bearing in mind the fundamental principles first enumerated, questions are asked under each caption which will suggest changes that will be fruitful of good results in any unification where local conditions are favorable.

Interchange.

(1) Are you now handling the maximum number of cars by the most economical or direct route, either existing or reasonably attainable?

(2) Can the number of interchange movements be reduced advantageously by combining movements from various origins to various destinations?

(3) Can you extend the practice of reciprocal interchange now working so advantageously at many points?

(4) Are you interchanging directly between yards instead of on assigned interchange tracks? Could not delay and rehandling be reduced by so doing?

(5) Are you, as far as practicable, making interchange with regular crews who are familiar with the routes and the work to be done?

(6) Can the volume of direct interchange be increased by minor track changes or changes in practice?

(7) Are interchange facilities at any point inadequate for periods of heavy traffic under new conditions, and, if so, is it practicable at reasonable cost to make the necessary increase in capacity, or is it better to relieve the situation by rerouting interchange?

(8) Have you any separate route of interchange that could be discontinued to advantage by consolidation with another route?

(9) Can you have cars grouped, either in cuts or solid trains, before they reach the terminal, so as to reduce terminal switching?

(10) Can interchange in any terminal be reduced to advantage by rerouting through outside junctions?

Consolidation of Industry and Team-Track Switching.

(11) Have all industrial plants sufficient track capacity and other facilities so that cars may be promptly placed, loaded or unloaded to the full capacity of the plant during each working shift without unduly frequent switching or interference with plant operation?

(12) Can you arrange for "one line" switching of individual or grouped industries or team-tracks?

Consolidation of Yards.

(13) Can greater efficiency in yard operation be obtained through the consolidation of the yards of one or more railroads: (a) By dividing large terminals into zones and assigning as great a number of receiving yards to as small a number of classifying yards as possible, thereby assembling the maximum number of cars into the minimum number of classifications? (b) By pooling similar yards of neighboring railroads so as to conserve yard room, avoiding both the duplication of switching and interchange between yards? (c) By consolidating existing facilities, adapting such combined facilities to a new program of operations which disregards prior uses, with or without minor physical changes; or by pooling the same in the sense that one line's facilities are used to serve the overflow of traffic confronting a neighboring line's facilities? (d) By combining the use of two or more yards to adapt them to the segregation of freight with respect to commodities or destinations?

Consolidation of Engine Terminal Facilities.

(14) Can you re-assign or co-ordinate the use of engine terminal facilities so as to avoid or reduce delay and congestion, reduce expense and engine miles, or improve supervision?

(15) To what extent can neighboring engine terminal facilities be adapted to the economical housing and handling of engines grouped according to the nature or location of their service or their size without regard to road ownership?

Consolidation of Car Inspection.

(16) Has "single inspection" been instituted wherever cars are interchanged?

17) Can greater efficiency be obtained by consolidating the car inspection forces at adjacent yards, junctions or stations?

(18) Are car inspections and repairs so made as to insure safety and prevent further damage to equipment and lading?

(19) Is such inspection made so as fully to detect violations of loading rules and are these rules effectively enforced in every case of such violation?

(20) Has the force of inspectors been educated to the making of effective inspection and is the inspection followed unremittingly by the making of adequate repairs?

Consolidation of Car-Repair Work.

(21) Can you obtain greater efficiency through extending consolidation of car repair forces and facilities: (a) By combining in one repair yard the work of one or more roads? (b) By combining the forces and facilities in a given zone?

(22) Do you require car inspectors at outlying points to repair cars as far as possible and to make light repairs to cars in industrial districts where cars are "made empty" or placed empty for loading?

(23) Are you keeping maximum number of cars in service by giving preferred attention to those needing light repairs?

Consolidation of Car Records.

(24) Can the number of records and incidentally the amount of clerical work be reduced: (a) By the consolidation of car record departments? (b) By the consolidation of car record forces in yards reasonably near, one to the other, whether these yards are combined or not? (c) By the elimination of certain intermediate car records on each road through a more comprehensive and manifold use of train and yard reports so as to supply the greatest amount of information from each report?

Consolidation of Freight House Facilities.

(25) Can the freight houses of two or more lines be so combined that certain houses may be used for inbound and others for outbound business?

(26) Can the use of a freight house be discontinued, transferring its business to another, or to a combination of other freight houses?

(27) Can certain freight houses be assigned to designated commodities (perishable or non-perishable)?

Transfer of Freight Between Freight Houses.

(28) Are you preventing transfer of freight between freight houses: (a) By loading more intelligently at originating points? (b) By utilizing more fully in both directions

drays, tractors, trucks, tunnels, or other means of conveyance, so as to reduce the use of trap cars and save rehandling?

CONSOLIDATION OF L. C. L. BUSINESS AT TERMINALS.

(29) Are you co-ordinating: (a) The routing of l. c. l. freight; (b) The use of freight houses at either end of the route; (c) The use of transfer stations; to avoid (1) Congestion; (2) Unnecessary local transfer of freight between houses; (3) Light loading of cars?

(30) Have you adopted "Sailing Days" for l. c. l. freight: (a) To secure better and heavier loading of cars? (b) To avoid breaking bulk in transit? (c) To reduce loss and damage in transit? (d) To avoid "overs and shorts" by such stowing in the car as to make individual shipments readily accessible in "peddler" cars at intermediate stations?

(31) What may be done in the way of extending railroad service to include "store door delivery" of freight?

CONSOLIDATION OF TEAM-TRACKS.

(32) Can team-tracks in reasonably adjacent territory be consolidated and thus bring about: (a) Reduction in classification? (b) More intensive use of valuable terminal property? (c) More prompt release of cars? (d) Greater convenience to the public? (e) Avoidance of a needless duplication of operation or maintenance? (f) The use of yards near passenger stations for baggage, mail and express when desirable?

BUREAU OF COLLECTION OF FREIGHT CHARGES.

(33) Where the collection of freight charges is necessary at other than stations, have you given consideration to: (a) Collection for all railroads by zones as a matter of economy and public convenience? (b) Collection for all railroads from all sources by a designated bureau?

CONSOLIDATION OF WHARVES, DOCKS AND ELEVATORS.

(34) Can you obtain greater efficiency in the use of waterfront facilities of one or more railroads by the consolidation of: (a) Coal piers; (b) Grain elevators; (c) Merchandise piers; (d) Other piers; so as to (1) Reduce number of units operated; (2) Take full advantage of most modern facilities to reduce double handling of freight; (3) Release facilities for other uses; (4) Reduce switching or floatage; (5) Secure more prompt release of cars?

(35) Will beneficial results follow the placing of all waterfront facilities, or those in certain zones, under single control?

CONSOLIDATION OF PASSENGER STATION FACILITIES.

(36) Can you obtain greater efficiency in operation through extending the consolidation of the passenger facilities of one or more railroads: (a) By combining the forces of two or more lines using the same station? (b) By using one or more stations for handling the business of two or more lines, thus enabling certain stations to be closed? (c) By co-ordinating the use of stations so as to handle in the same station the traffic from or to certain regions? (d) By continuing the use of adjacent stations, but consolidating their forces? (e) By abandoning passenger service on certain sections of a line, the traffic affected to be accommodated on other lines?

CONSOLIDATION OF PASSENGER STATION SWITCHING.

(37) Can you obtain greater efficiency in operation through extending the consolidation of passenger switching: (a) By combining the switching of two or more roads, using the same station, where each now performs its own switching? (b) By combining the switching operations of adjacent stations? (c) By extending any existing joint service to include all switching operation of passenger equipment within the terminal? (d) By reassigning coach yards so as to reduce haul of equipment to a minimum and to obtain maximum efficiency?

(38) Can an existing freight or other yard and terminal be converted into a purely passenger facility, effecting economy, reducing congestion in both freight and passenger traffic, and decreasing haul of empty passenger equipment?

(39) Can you use wye tracks or loops for turning trains?

CONSOLIDATION OF TICKET OFFICES.

(40) Are city ticket offices, other than at stations, so consolidated that all tickets for each road are sold by each ticket clerk?

(41) Are ticket forces now consolidated at stations used jointly?

(42) Can ticket forces of adjacent stations be consolidated to advantage?

(43) Have you analyzed the necessity of continuing city ticket offices outside of stations?

(44) Have you analyzed the ticket sales in the office to develop the relative number of tickets sold to a certain few heavy traffic destinations, with a view of improving the service by confining sale of such tickets to one or more windows?

(45) Have you considered at depot ticket offices the limited consolidation of sale of railroad tickets to heavy traffic destinations, with the general sale of Pullman tickets, to improve service to the public.

CONSOLIDATION OF TELEGRAPH OFFICES

(46) Can you obtain greater efficiency in the use of telegraph facilities of two or more lines: (a) By further consolidation of adjacent offices? (b) By using the offices of one line in handling trains on an adjacent line? (c) By through routing of messages? (d) By consolidating or co-ordinating relay offices? (e) By a more general use of the telephone, telautograph, automatic telephone, or other means of transmission; attracting attention by visible or audible signals?

CONVERSION OF TWO OR MORE SINGLE-TRACK LINES INTO A MULTIPLE TRACK SYSTEM.

(47) Can you convert two or more single-track lines into a multiple track system, establishing currents of traffic, to expedite train movement; to increase safety, capacity and train tonnage; and to promote economy?

SEGREGATION OF FREIGHT AND PASSENGER TRAFFIC UPON SEPARATE TRACKS WHERE TRAFFIC IS NOW MIXED ON SEVERAL SINGLE OR DOUBLE-TRACK LINES.

(48) Have you considered the possibility of consolidating the passenger traffic of several lines, now carried over three or more main tracks, upon two main tracks? (a) For the purpose of providing a better entrance to a passenger station? (b) For the purpose of setting free badly needed tracks for use in freight service? (c) For the purpose of securing freedom from interruption by passenger train movements of freight, transfer or switching movements?

ROADWAY AND STRUCTURES.

(49) Have you, with the intensified use of terminals, made proper arrangements for the maintenance and improvement of all yard and main tracks and structures to such standards as will render them reliably serviceable under the new conditions?

(50) Are there limitations of curvatures, clearances or other conditions that may interfere with plans of unification in any case?

(51) Are the terminal buildings located and so maintained that the maximum efficiency of the terminal operation may be attained?

(52) Are trains delayed on account of inconvenient or remote locations of billing offices?

(53) Are terminal buildings reasonably accessible to the homes of employees? How should this condition be improved?

(54) Are proper conveniences in the way of rest rooms provided for female employees; and are the buildings properly lighted, ventilated and heated?

Regional Reports to the Director General

Two of the Regional Directors Describe the Steps Which Have Been Taken to Consolidate Facilities for Common Use

A. H. Smith, director of the Eastern region, and Hale Holden, director of the Central Western region, have made reports to the director general covering the progress that has been made under federal control.

Unification of Railroads in Eastern Region

An estimated annual saving of approximately $36,000,000 by consolidations and co-ordination of facilities and by other economies in the Eastern region is shown in a report by Regional Director A. H. Smith, dated August 29. made public by Director General McAdoo.

The estimated annual saving in money for each item where it can be determined or approximately estimated, is summarized as follows:

Passenger and freight station facilities and forces	$1,363,542
Engine house facilities and forces	96,078
Inspection facilities and forces	264,314
Miscellaneous facilities and forces	4,150,401
Freight operation	3,793,231
Passenger operation	8,668,038
Total	$18,335,604

The arrangements listed in these statement have actually been placed in effect, or ordered to be made effective at an early date. There are a large number of similar arrangements under way that will be made effective in the near future, which will be reported from time to time as they are consummated. The report covers the present Eastern region only, on the assumption that a similar report will be made by the regional directors of the Alleghany and Pocahontas regions, including the period when those regions were included in the Eastern territory.

In addition to the foregoing, arrangements have been made which have resulted in great economies and improved service, which it has not been undertaken to reduce into money, because it is so variable and difficult to measure. The report declares that it is fair to say, however, that conservatively estimated, this additional saving will approximate fully as much as that which it has been possible to measure, namely, $18,335,000.00.

Among these are mentioned the following:

The prompt and preferred movement of government and allied assignments through closer co-operation with the several government departments and representatives of the allied governments. Assembling into solid trains and forwarding to seaboard the large quantities of meat, provisions and supplies for our allies and army in Europe, routing of same by the roads best fitted to handle such class of traffic, and concentration on the destination-roads best equipped to make the delivery, in many instances direct from the pier to steamer. This results in prompter movement of important war traffic, avoids congestion at seaboard, permits prompt release of equipment and reduces switching. In this connection, mention might be made of the safe and expeditious movement of an enormous number of troops to cantonments and embarkation camps, a large percentage of the soldiers that have gone to Europe having embarked at ports in the Eastern region.

The arrangement for assembling into solid trains of domestic fresh meat and perishable freight for movement in solid trains from Buffalo, Chicago, and Cincinnati and other western points on certain days of the week for movement via roads best fitted to handle it. This permits of a fast schedule, reduces liability as to loss and damage and permits of reduction in the feeding requirements.

The arrangement for assembling into solid trains of domestic fresh meat and perishable freight for movement in solid trains by designated routes best suited for the handling of such traffic which permits of a reduction in time, affords proper refrigeration protection, and reduction in loss and damage.

The arrangement for assembling oil from the mid-continental fields to eastern points into solid trains for handling via designated routes, which permits of better service, less intermediate switching and junction handling, the efficiency from which has been such as to increase the available tank car supply.

The general classification of freight eastbound by originating roads with the view of running it through to general destinations with the elimination of intermediate switching.

The zoning of traffic from the west to the east with the view of arranging it by direct and through routes, of reducing the amount of traffic handled through the busy gateways of Chicago and St. Louis, and particularly of moving business through the Niagara frontier, and avoiding the congested Pittsburgh gateway. This arrangement provides for the movement from the Northwest of a greater amount of traffic across the Great Lakes through Michigan for points in northern New York state and northern New England; and the movement of traffic from the central west through intermediate junctions between Chicago and St. Louis for handling via the Niagara frontier; reducing switching, expediting movement of traffic, and increasing the capacity of the available facilities.

It has also been arranged that the greater portion of the traffic from St. Louis will be routed through the Niagara frontier. Buffalo, Chicago and New York trunk lines will be used to a greater extent for the through traffic, while the short lines operating through St. Louis, Peoria, Chicago and intermediate junctions to Toledo, Detroit and other Michigan points will be utilized to a greater extent for the short haul traffic. This plan also provides that business moving through the Buffalo gateway for New England points on the Boston & Maine and north thereof will move via Albany and Mechanicsville gateways and avoid the Maybrook and Harlem river gateways, which will keep the freight out of the congested New York district. It further provides that traffic from and through the state of Pennsylvania will move to a greater extent via the Delaware & Hudson through Albany and Mechanicsville gateways for the same purpose.

Handling company fuel and material by most direct routes, saving unnecessary haulings, which under private control was sometimes done to give the greater proportion of a through rate to the receiving line.

The interchange of labor to eliminate accumulations of less carload freight.

The quick transfer of power to roads where most urgently needed. All roads are required to report surplus equipment and it is assigned as the need appears, keeping the available power in service and avoiding accumulations.

The common use of repair facilities to repair and get into service cars and locomotives of other than the owning roads.

The intensive loading and through movement in solid cars from origin to destination of less carload freight, and general adoption of the "sailing day" plan, increasing the loading per car and expediting the movement of this important class of traffic.

The co-ordination of floating equipment at New York harbor, resulting in greatly increasing the efficiency of marine equipment and the more economical movement of traffic in the harbor.

The control of traffic through permits to eliminate long hauls, cross hauls and movements from one port to another, and the diversion of traffic to such ports as are best able to accommodate it, including the diversion of traffic away from the congested conditions of New York harbor to the South Atlantic and Gulf ports, and to Montreal.

The arrangements recently made for the use of the Baltimore & Ohio through the Youngstown district to relieve other lines and facilitate traffic movement.

The utilization of the Pittsburgh & Lake Erie, New York Central and Baltimore & Ohio for handling flow of lake coal from mines on the Pennsylvania Lines West.

The co-operation established between the rail and water transportation systems, i. e., with the coastwise steamship lines, the Erie canal, and the Great Lakes lines.

The appointment of terminal managers at important centers to co-ordinate the facilities and operations of the several railroads.

The elimination of competition as between railroads for the purchase of ties, equipment, etc., and unifying control of purchases through an organization that has been effected of the purchasing officers of the railroads in the various districts into local or group committees to co-operate in the matter of consolidation and co-ordination of purchases as far as practicable in their several zones, standardizing prices and practices to give all the roads the benefit of the lowest quantity prices, and by consultation with the regional purchasing committees effecting the most economical administration of their own departments.

Abolishing of the freight and passenger traffic associations, including the statistical bureaus connected therewith, succeeded by the freight and passenger traffic committees, which have inaugurated a practice of establishing car capacity loading as minimums in fixing new rates on low class commodities, revising and standardizing rates to conserve revenue by removing the downward tendency of rates resulting from reducing the higher to the lower, and the publishing of tariffs in consolidated and simplified form, all of which will result in the saving of large sums to the railroads annually.

The report to Director General McAdoo continues:

Starting from the first of the year, the primary accomplishment in the Eastern region was the outline of an organization pro tem, consisting of six district committees, each committee made up of the chief executive of the railroads in their respective districts, with local committees of operating officers at the important terminals and commercial centers. The desire of the United States Railroad Administration for prompt unification of facilities and operation of the railroads with a view of greater efficiency and economy was immediately presented to those committees and their efforts were directed from the beginning to this end.

This organization is virtually intact today, except that the railroad presidents have been replaced by federal or general managers and the district conferences have become either separate regions or sub-districts of the Eastern region, thereby showing that the plan or organization for the conduct of the properties in the Eastern region as established at the first of the year has been the foundation of the plan of subsequent organization which became effective June 1.

This organization, based upon the devotion of the personnel to the specified leadership, and its undivided support to the purposes of the director general and staff has accomplished the adaptation of all the roads of the region to the wishes of the government and has assisted primarily in the establishment of United States Railroad Administration standards of various kinds. There has been virtually no friction whatever in the work of the organizations, which has had the effect of placing the officers and employees of the Eastern region in a receptive attitude for obedience to such United States Railroad Administration standards in current conduct of the work as rapidly as such standards are available.

The new organizations under the district directors, federal managers and general managers, which have been in the process of formation for the last two months are approximately established, the changes having taken place without any interference with the work of the roads. The necessity of effecting every possible unification and co-ordination of facilities and operations to bring about the greatest efficiency and economies, of dispensing with the services of every needless official or employee, and at the same time giving to the public the benefit of the greatest measure of convenience and service at the lowest possible cost, is being kept constantly before the organization. You may be assured that no effort will be spared in this direction.

Conditions in the Central Western Region

The director general has given out a short report made to him by Hale Holden, director of the Central Western region. In substance the report is as follows. In general there was a free movement of all classes of freight and where slight congestion occurred at Kansas City terminals, this was cleaned up by a re-routing of freight. On the Ogden rout of the Southern Pacific fire and accidents to snow sheds would have delayed freight had not fruit been deferred to the Atchison, Topeka & Santa Fe, via Fresno, and other freight to the Western Pacific.

Except for the accidents to the snow sheds, there were no serious accidents in the region. Loading has been as follows:

Total Cars Coal Loaded

1918	1917	Increase	Per cent of increase
167,829	150,152	17,677	11.1

Total Cars Grain Loaded

1918	1917	Increase	Per cent of increase
52,062	35,658	16,404	46.0

Total Cars Revenue Freight Loaded

1918	1917	Increase	Per cent of increase
600,839	599,599	1,240	0.2

Total Cars Revenue Freight Received from Connections

1918	1917	Increase	Per cent of increase
311,034	292,088	18,946	6.5

There was an exceptionally heavy movement of refrigerator cars to Colorado, Utah and California and extremely hot weather made it necessary to haul ice long distances to replenish the supply at several re-icing stations. During the month there were 138 through fruit specials for California to the Missouri river and Chicago, averaging 40 cars per train. The total California movement since June 1 amounted to 446 trains, averaging 39 cars each. The Colorado fruit movement began about August 15 and there were 45 fruit specials moved, averaging 34 cars each.

The total movement from the mid-continent oil fields, via the Southwestern region, amounted to 541 trains, averaging 28 cars per train.

In August, 184 troop trains were moved on schedule and without accident. There are 14 roads reporting to the Central Western regional office, although not all included in the Central Western region, and these roads loaded 220,658 coal cars in August, as compared with 220,701 coal cars in July, 202,549 coal cars in June, 1918, and with 150,940 coal cars in August, 1917. The heavy movement in July resulted in a surplus which was disposed of by zoning coal from western Kentucky out of Illinois, Indiana and Wisconsin, furnishing a larger tonnage for the Northwest and opening the state of Michigan to Illinois coal.

There are 10 per cent more men working in the car and locomotive departments than there were in August, 1917.

Although there is a shortage of track men, there is sufficient to keep the roads in safe condition and to make some progress with improvement work.

A man has been appointed to take charge of routing work and each federal manager has been asked to appoint a traffic and an operating man to pay especial attention to this matter.

Besides the elimination of 11,572,856 train miles per year reported in June, there were further reductions in train service in July, made possible by the elimination of 328,950 train miles per year and in August another 556,109 train miles per year. Notwithstanding the increase in passenger rates, passenger travel has continued in large volume.

Consolidated ticket offices have been established at Colorado Springs, Col.; El Paso, Tex.; Fresno, Cal.; Lincoln, Neb.; Long Beach, Cal.; Oakland, Cal.; Pueblo, Colo.; Sacramento, Cal.; San Diego, Cal.; Salt Lake City, Utah; and San Jose, Cal.

George Morton, assistant general freight agent of the Chicago, Burlington & Quincy, has been appointed chairman of the committee to install sailing days, and the car saving per month so far aggregates at 13 stations 5,300 cars.

Good reports have been received in response to a circular urging a campaign to induce shippers to move winter supplies during the summer months.

Between Wells, Nev., and Winnemucca, 191 miles, there are to be 11 cross-over tracks built between the Southern Pacific and Western Pacific tracks which are here parallel, and the work will be completed by October 1, permitting operation of these two roads as double track.

Between Denver, Colo., and Pueblo, the tracks of the Denver & Rio Grande, Atchison, Topeka & Santa Fe, and Colorado & Southern, will be operated as one railroad.

Orders of Regional Directors

STEEL NOT AVAILABLE FOR TANKS.—The Southern regional director has issued a circular quoting a letter from the Priorities Committee of the War Industries Board to the Central Advisory Purchasing Committee stating that applications from contractors for priority on steel intended for the construction of water tanks have been declined and that "it is to be regretted that the railroad companies generally have not yet realized the shortage of steel." The letter adds that manufacturing concerns are being required to use wood or concrete, not only for water but for the storage of fuel oil. In view of the continued shortage of steel, the circular says, all concerned should understand that applications will not be approved by the Priorities Committee for the construction of steel, water and oil tanks, and that construction of such tanks must be confined at present to wood and concrete.

Grain Control Committee.—To control the issuance of permits for the movement of grain under the embargo established at primary markets by the Car Service Section on September 16, the following grain control committees have been appointed by their respective regional directors at the following points:

Chicago—J. H. Brinkerhoff, terminal manager, chairman; Fred Zimmerman, railroad traffic assistant; J. H. Cherry, Food Administration, Trans. Divn.

Milwaukee, Wis.—C. O. Bradshaw, terminal manager, chairman; John A. Millington, railroad traffic assistant; Chas. Thompson, Food Administration, Trans. Divn.

Minneapolis, Minn.—H. A. Kennedy, terminal manager, chairman; T. E. Sands, railroad traffic assistant; W. A. Prinsen, Food Administration, Trans. Divn.

Duluth, Minn., and Superior, Wis.—W. H. Strachan, terminal manager, chairman; G. A. Sherwood, railroad traffic assistant; G. M. Bowman, Food Administration, Trans. Divn.

St. Louis, Mo.—A. S. Johnson, terminal manager, chairman; W. A. Rambach, assistant freight traffic manager, Missouri Pacific; J. F. Dodge, repr., Food Administration.

Kansas City, Mo.—W. M. Corbett, terminal manager, chairman; H. E. Heller, railroad traffic representative; R. A. Peters, Food Administration representative. (This committee will also have jurisdiction over Kansas City, Kan.)

Omaha, Neb.—W. M. Jeffers, terminal manager, chairman; F. Montmorency, railroad traffic representative; F. D. Wilson, Food Administration representative. (This committee will also have jurisdiction over South Omaha and Council Bluffs.)

Peoria, Ill.—H. D. Page, terminal manager, chairman; H. I. Battles, Food Administration representative. (This committee will also have jurisdiction over Pekin.)

St. Joseph, Mo.—S. E. Stohr, chairman; F. E. Hollingshead, Food Administration representative.

Working Relations With Relinquished Short Lines.—The Southern Regional Director has issued the following:

The government has definitely relinquished control of a number of the so-called short lines. It is the desire of the administration to protect each of them as far as may be reasonable and practicable in the routing of traffic; to accord them equitable divisions, and to give them a fair share of available equipment. Specific routing charts applying from the larger centers and the more important junctions will shortly be made operative. These will give the same recognition to the short lines as to the governmental controlled lines in matters of preferential and secondary routes, as well as the closing of unduly circuitous routes. When these charts are ready to be put into practical use, certain instructions will be given the trunk lines with regard to routing as in connection with the charts from points of origin not specified therein. In the meantime, please instruct all concerned to see that routing desired by shippers, or indicated on bills of lading or on connecting lines billing via all non-controlled lines is accepted and respected, where such routing is not unduly circuitous. If it is desirable, for efficiency reasons, to divert traffic instructed for movement over non-controlled lines, careful record of such diversions should be kept with view of such lines being afforded a reimbursement with other traffic. Non-controlled lines are authorized to call upon this office to make good diversions if the Administration lines do not promptly liquidate the indebtedness.

Changes in divisions of joint rates now in existence, made by advancing or reducing non-controlled lines' proportions, are not to be made without first securing authority from this office. New joint rates, of course, cannot be established without the necessary rate authority from the Southern Freight Traffic Committee. The committee is now engaged in a review of existing divisions, with a view of placing them on an equitable and fair basis. In anticipation of a final decision, however, should the judgment of any official of an administration line be that existing divisions are unfair to the connection, the facts, together with a statement for the reasons for this opinion, should be promptly communicated to this office.

Where the non-controlled line has only one trunk line connection, it should be treated as a shipper of freight local to the latter line, and receive its pro rata of available cars. Where it has two or more trunk line connections, the latter, after surveying the trend of freight, should agree upon each line's share of the responsibility of supplying an equitable share of the equipment required by the short line.

Conservation of Scrap Car Wheels.—The following suggestions have been offered to the regional director by H. B. Spencer, chairman, Central Advisory Purchasing Committee: "The need for both new and scrap cast iron wheels is so great that I recommend instructions be issued to all railroads in your region that immediate and effective action be taken to utilize every second hand and scrap car wheel available. We will require 687,600 chilled cast iron wheels for 87,000 cars and locomotive tenders for the U. S. Railroad Administration, in addition to what is required for the overseas' service. In order to produce these wheels, we must furnish at least 55 per cent old car wheels. With charcoal pig iron available it would have only been necessary to furnish 25 per cent old wheels in the mixture, but charcoal pig iron is unobtainable and we must make up the deficiency with old car wheels. Every railroad acquires and has on hand large quantities of trucks, wheels and axles, which are not serviceable and should

be dismantled. In nearly every case a usable wheel or axle will be procured and in all cases scrap wheels will be obtained. A vigorous campaign requiring every railroad to dismantle all unserviceable trucks and press off every wheel from the axles is the only thing which will relieve the present situation."

No Place for Slackers.—The regional director for the Pocahontas region has issued the following circular to employees:

> The part that the railroads take in the prompt winning of the war is measured by the effort of every employee to do his best.
>
> 1st. To so perform his duty, no matter how exalted or how humble, that the soldiers "over there" may not suffer any loss of efficiency, or be deprived of any possible comfort, through the failure of the transportation facilities of the country.
>
> 2d. To so deal with the public, which is called on to pay higher rates (both passenger and freight) for a restricted service, that all may understand why these restrictions are necessary, and know that every effort is being made to give the best possible service, second only to war requirements.
>
> All must realize that the responsibilities of railroad employees under federal control have changed only in that they have been increased, and an appreciation of this fact will be reflected not only here but also at the front.
>
> SLACKERS HAVE NO PLACE IN THIS REGION.

Inter-Regional Dining Car Committee.—An Inter-Regional Dining Car Committee has been appointed by Edward Chambers, director, Division of Traffic, especially charged with the installation and supervision of the plan to standardize meals served in dining cars. This committee is to be a permanent one and the members in each region will report to the regional director. The chairman of the committee, J. R. Smart, superintendent, Dining Service, New York Central Railroad, New York, represents the Eastern region.

Delivery of Emergency Coal to Retail Dealers.—The Northwestern regional purchasing committee states that a railroad which delivers coal to any consumer or retail dealer, at the request of the Fuel Administration, to relieve an emergency, may receive therefor the cost of the coal, including lawful transportation charges from the point of origin to the point of destination, and the additional sum of 15 cents per net ton, or more as may be agreed upon by the railroad and the retail dealer. In case of a failure to agree, the additional sum may be fixed by the bureau of prices of the United States Fuel Administration upon application by either party.

Industry Track Agreements.—The Northwestern regional director exhibits two forms covering standard track agreements which were prepared in accordance with the terms of General Order 15, one of which is to govern the construction, maintenance and operation of new industry tracks and the other the maintenance and operation of existing industry tracks not previously covered by written agreement. A supply of these forms has been printed and will be furnished to railroads upon application.

Substitution for Brass and Copper Chain.—The Northwestern regional purchasing committee suggests the substitution of steel chain in place of certain specified types of brass, copper and bronze chain, as recommended by the War Industries Board. The committee also lists a number of types of chain, certain sizes of which it suggests might be eliminated without serious inconvenience.

Concrete Water Tanks.—The Northwestern regional director asks for detailed information concerning the serviceability of concrete water tanks and the recommendations of individual lines with regard to the use of concrete as a material for the construction of water tanks.

Movement of New Locomotives from Builders.—The Northwestern regional director instructs lines under his jurisdiction to see to it that the boilers of new locomotives are thoroughly washed after completing their first trip. This step is ordered to prevent foaming.

Blueprints of Freight Car Specifications.—Blueprints of United States standard freight equipment, together with specifications, may be secured upon aplication to J. M. Hansen, secretary of the committee on production of the War Industries Board, Washington, D. C., at prices ranging from five cents each to $1, varying according to the size of the print.

Prices of Cross Ties.—The Northwestern regional purchasing committee announces that the prices for ties in various territories included in R. P. C. Circular 19, will remain in effect until July 1, 1919.

Salary Increases to Subordinate Officials.—The Northwestern regional director announces that the director general has authorized June 1, instead of August 1, as the effective date for salary increases to subordinate officials. The extent of these increases was indicated in the *Railway Age* of September 13, page 519.

Development of Coal Mines.—The Southwestern regional director adds to his previous instructions with reference to the opening of new coal mines agreed upon by the Railroad and Fuel Administrations. According to this agreement application for the opening of new mines is to be made by the coal mining company in the first instance to the Fuel Administration which investigates as to the desirability of the proposed mine, whether the particular class of coal which would be produced is needed, and whether miners are available. There have recently been some embarrassments in working out this arrangement as the result of railroad officers interfering by giving letters of recommendation to the applicants to be sent directly to the Fuel Administration. This practice is to be stopped immediately, and hereafter such information as is desired describing pending applications will be called for through the proper channel.

Grain Embargo at Primary Markets.—The Northwestern, Central Western, and Southwestern regional directors have set forth the details of the system inaugurated by the Car Service Section on September 16, for the control of the movement of grain to primary markets. Effective September 18, an embargo was placed against all shipments of grain consigned or reconsigned to Duluth, Minneapolis, St. Paul, Superior, Milwaukee, Chicago, St. Louis, East St. Louis, Peoria, Kansas City, Mo., Kansas City, Kan., St. Joseph, Omaha, South Omaha, and Council Bluffs. Hereafter shipments will move only on the permits issued in cooperation with the Food Administration, the circulars containing detailed instructions to govern the application of permits and shipments thereunder. Grain control committees have been appointed at each market, the personnel of which is shown elsewhere in this issue, to consider requests for permits and to control the movement of grain. Standard forms have been prepared to cover the application for a permit, the authorization to a freight agent by the grain control committee to accept and forward a given shipment, and the agent's advice to the committee that a shipment has been made.

Iron and Steel Products.—The Northwestern regional purchasing committee asks for the sizes and amounts of various iron and steel materials in storehouses on hand September 1, due on orders September 1, and used between July 1, 1917, and June 30, 1918. The materials include various types of wheels, ties, track bolts and spikes, tie plates, rail anchors, firebox steel, bar iron, etc.

Assignment of Ballast Cars.—The Southwestern regional director asks that a canvass be made to determine the number of ballast cars available, or which will be available, for other service during winter months. He asks that the cars be promptly assigned to the handling of cinders, stone gravel, sand (both company and commercial) or for the transportation of other commodities for which this class of equipment is suitable, thereby releasing coal cars now in such service. Owning lines are instructed to retain control of ballast cars so that they will be available in time for shopping preliminary to proper assignment next spring. Hence it would not seem proper to place them in general service where they will become badly scattered.

Purchase of Thrift Stamps and War Saving Stamps.—The Eastern regional director states that it is desirable to facilitate in every reasonable way the purchase of Thrift Stamps and War Saving Stamps by the railroad officials and employees at railroad stations, yards, shops and other places where large numbers of railroad employees are at work. The details relative to the provision of the stamps, the accounting therefor and the proceeds of the sale thereof, should be worked out through the federal treasurers, who can obtain any additional information needed from the federal reserve banks or the War Loan Organization, Treasury Department, Washington, D. C.

Western Railway Club Opens With Keynote Meeting

Three Railroad Officers Speak on Problems and Responsibilities in the Present Situation

THE FIRST MEETING of the Western Railway Club, held at the Hotel Sherman, Chicago, on September 16, was marked by three inspiring addresses. The speakers were M. K. Barnum, assistant to the vice-president, Baltimore & Ohio; H. R. Warnock, general superintendent motive power, Chicago, Milwaukee & St. Paul, and W. E. Dunham, assistant to general superintendent motive power and car department, Chicago & North Western. All three addresses are given in part below:

M. K. Barnum's Address

We can find no more timely keynote at present than the motto, "What can we do to help win the war?" As railroad men, there are very many things that we can do. Transportation is one of the most important factors in war activities; without it the war would have to stop.

The volume of freight business during the first six months of this year for the Class I roads was slightly below the same period for last year. A few figures for the month of June may be of interest; as compared with June, 1917, there was a reduction of 3.2 per cent in revenue ton miles; a reduction of 3.6 per cent in freight train miles. The average tons per train were the same as for last year, 698 tons. The average tons per loaded car were 28.3 tons, an increase of 1.8 per cent. Those figures will serve to give you an idea of the business of the country on the whole as compared with last year. The decreases seem to have been principally in the West and South, while in the East there have been considerable increases. The greatest increase has been in New England.

The locomotive situation has not changed much from 1917. There are a few more locomotives in the total than for that year. A very few of the large orders of government locomotives have been finished and delivered but the work on the balance has been delayed due to the necessity of pushing the work on locomotives for our troops in France. The official reports for the month of June show that there were about 14 per cent in and waiting shop, which is a slight increase over the same month for last year. I mention these figures to give you an idea as to the features that the railroad men will have to concentrate their attention on. The director general has recently asked that we give special attention to the repairs of locomotives, on account of the delay in the delivery of the new locomotives.

THE MATERIAL AND LABOR SITUATIONS

The obtaining of material for locomotive and car work this year seems to be somewhat easier than last year, but the labor supply has been very short, and it has been one of the most difficult features for railroad men to contend with. There has been some improvement in the matter of labor for railroads during the past month or two, and it may still continue to improve, as there are several things that should have a favorable bearing on the situation. In the first place, the increases in the wages for railroad men, shop men in particular, have made the jobs more attractive as compared with contract work. In the second place, there has been some reduction in the forces used for non-essential work, and furthermore the passage of the new draft law has appeared to help the situation somewhat.

The wage increases have affected especially the day workers, and to some extent the foremen and master mechanics, but up to this time no authority has been given for increase in piece work rates, so that this will tend to discourage piece work and will probably result in its abolition in many, if not all, shops. The experiences which I think we have all had lead me to believe that if piece work is abolished in the shops where it has been in force for a long time, it will eventually result in a decrease in the output of those shops. It may possibly not be felt for three or four months, but it is not human nature to work with the same industry and intelligence and to get the same results when a man works by the hour or by the day, as when he is paid so much per job and a premium is put upon his industry and his intelligence.

The reduction in the force used for non-essential industries has, I think, only begun. I believe that this movement will have to be pushed a great deal harder than it has been, because there is a limited number of men available in this country; there are very few coming from foreign countries, and the draft is going to call for a good many of the able workmen to give up railroad work and go into the government service. It is probable that there will be more women enter railroad work than heretofore. Women should not be asked or expected to do work for which they are unsuited.

One thing that should receive, if possible, more attention, is the safety first movement, as a vigorous campaign in that line will help conserve man power, which is one of the big problems today. Another thing that will need to be watched pretty closely is the tendency of men to lay off. A great many men feel that they do not need more than a certain amount of money to pay expenses, and the increase in wages has already tended to make such men take more time off. The argument, of course, for increases in wages is to enable the men to make a better living, to enable them to save something for investment in liberty loans and war savings stamps, and if they do not take advantage of the increased wages to do those things they should be checked up and their attention called to the fact that they are not showing the proper spirit.

THE CAR SUPPLY PROBLEM

The freight car situation is likely to be as serious this fall as last year, if not more so, as there are only a very few more freight cars in the country than there were last year, and about 6 per cent of the total are bad order cars. That is not extremely high, but it ought to be lower. Some roads have the bad order cars down to 3 per cent, and if some

roads can do it, probably most of them can, although other roads have as high as 10 or 11 per cent bad order cars. The figures for June show 143,343 bad order cars, as compared with 131,353 the same month last year. That is not perhaps a very large increase, but it is in the wrong direction.

The labor situation with regard to car work has been perhaps a little more difficult than for locomotive work on account of the lower rates paid, and the fact that good car men, particularly men who have been accustomed to work on steel cars, have usually been able to go out and get better jobs, as far as pay is concerned, in ship yards or in munition plants. The freight car repair work is being supervised for the country by an assistant to the director general and an organization of district inspectors, and I trust that this organization will, with the co-operation of the men on the railroads, be able to improve the conditions before winter starts in.

We all remember the hard winter that we had last year, and I presume most of us feel that a part of our troubles were due to poor facilities, or facilities that were not sufficient for the requirements. I would urge that it is important immediately to look over our facilities and see if anything can be done to improve them before snow flies, which will probably be pretty soon. I would call special attention to the necessity for seeing that roundhouse conveniences are in good order. The heating apparatus, the lighting apparatus, the air and blower lines, the ash pits, the coaling facilities and the tracks to and from the roundhouse, also the storage tracks, are all features of the utmost importance, and while the time is short, something can probably be done to improve conditions which have not already been taken care of. I realize, of course, that all roads have been giving attention to these matters during the year, but it is possible that a little more can be done.

In spending time and money on these improvements, we should always keep in mind, "Will this help win the war?" as that is the one aim and object that should be before us all. None of these problems is new to us, but they confront us with more force and urgency than ever before, and we must tackle them with increased energy and enthusiasm, always bearing in mind that our success in these matters affects very seriously the success of our boys who are on the other side and are fighting for us the battle of freedom.

Address of H. R. Warnock

The crucial test in which our country is engaged demands the utilization to the utmost of every resource which we have at our command. That one of these should be our transportation machine gives us who are railroad men a signal opportunity to play one of the most important parts in assisting in the removal of the threat against the free institutions of the world that could possibly fall to any single class or group of our civilian population.

Even though this opportunity comes to us with the disruption of the habits of a lifetime; even though it carries with it the contradiction of our political theories, or that it brings to us the threat of material loss; it should be sufficient for us to know that those to whom we have entrusted the conduct of our national affairs in this time of crisis deem these new conditions necessary to the attainment of the great issue confronting civilization. In that knowledge we should all join, as I am sure we do, in co-ordinating all our efforts toward the one great aim with a singleness of purpose and a determination that knows no defeat.

We of the Western Railway Club are men whose interests lie primarily in the mechanical department. Looking about us, after having become somewhat adjusted to the new state of affairs, do we not find after all a large measure of compensation for our disrupted prejudices in that many of our long standing ideals as for the construction and up-keep of equipment are entering the stage of actuality? To resent these innovations is to confess insincerity in the standards and recommended practices to which, in other years, we readily subscribed, but in the execution of which we seemed to lack initiative, were over-worshipful of our own schemes and creations, or were frustrated through lack of sympathetic interest on the part of influences having a more forceful, though less intimate, connection with railway mechanical affairs than ourselves.

Our earlier freedom in the following of diverse pathways to the same general goal permitted the development and use of a wide variety of equipment, so wide in fact that, except for the good offices of the Master Car Builders' and Master Mechanics' Associations, particularly, in making this equipment conform to certain definite limitations established in the interests of interchange, this all-essential principle in the conduct of the country's transportation business would have been a near impossibility. However, out of that time and method there has also come that wealth of invention that alone makes possible the establishment of universal standards on a basis that promises to be adequate over a reasonable period. Fortunate indeed we are, that the present line of action was not instituted as recently as 20 years ago, before the time when our eyes had been opened to the vast possibilities in the way of increased power and economy that are now matters of accepted practice, to say nothing of the several improvements which, though not yet established, are on the verge of coming into their own and give us promise of still further economies in steam locomotive practice.

The Railroad Administration's Mechanical Policies

I have suggested that there is compensation in the existing state of affairs. It is abundantly evident that the Railroad Administration appreciates the great importance of adequate power and car equipment and of having that equipment in a good state of repair. It is not that there is anything new or original in that policy since the excellent things that *should be* are mentioned by the score in the proceedings of our railroad technical associations. It is rather that the roads in a large measure have not been financially able to embark on the betterment schemes in a wholesale way. Those that were able did what they could, but the burden of carrying along with their own repairs the modernization and repair of less capable and more indifferent lines has been simply too great to permit of attaining an average condition of equipment, the country over, that would measure up to the requirement in the present crisis. It is the putting into effect of these *should be* conditions that gives us in the mechanical department cause for satisfaction. Cases in point cover the survey that has been made looking to the more general application of superheater apparatus to engines constructed prior to the advent of that important facility. Likewise investigation has been set on foot looking to the application of stokers to those locomotives not so equipped and whose size warrants resort to mechanical firing.

In the case of freight car equipment there is to be cited the action taken by the Railroad Administration in graduating the extent and cost of repairs to cars in accordance as they are sufficiently modern as to age and construction to be deserving of the attention that will restore them to service. This will have the effect of retiring the weak and obsolete cars that have been inveterate trouble makers to trunk lines for years. At the same time this plan of freight car betterment involves the consistent reinforcement of wooden frame cars where reinforcement is warranted, and the application of better draft gears of specified types to all cars undergoing repairs and not previously so equipped. These improvements constitute a program that any aspiring equipment officer would have been only too glad to have instituted on his line years ago had the financial condition of his road and the policy of his management so permitted.

We have, however, proof of realization on the part of the powers at present in control of the tremendous value of

adequate maintenance and the willingness of those powers to have repairs made to the limit of our capacity in the way of labor and materials, and we, appreciating both the opportunity and the necessity of bringing it about, should not fail in doing our utmost in carrying on this program.

Whatever else may be said about the standardized car and locomotive equipment being offered us, it is, at least, of conservative and rational design and must offer worth-while advantages in quantity production, under which plan only, considering the stress on our industries, can we hope to secure cars and locomotives in such numbers as to approach requirements. We do not expect, during the period of the war, to realize any advantage through simplified maintenance because of the fact that such standard equipment as we may be able to get within that time represents so small a proportion of the total. However, with this initial step taken we can reasonably look forward to a time when it will have its very appreciable effect. Even though the roads be returned to private management, the influence of this innovation undoubtedly will persist with the beneficial results referred to.

Responsibilities of Men in Mechanical Department

We must not fail to realize in the satisfaction which we find in this new-found appreciation of our department that it carries with it a responsibility in which every man, from the highest to the lowest, has not done his part until he has done his best, not merely on occasion but all the time. Two very important self-admonitions I would place before you. Each individual must remind himself to be diligent. The time for merely casual attention to the duties comprising the daily routine, if ever there was such a time, is past. Our individual duties have expanded, and that, tremendously. But new appreciation of the privileges and responsibilities of citizenship in this splendid republic should give us strength to carry each day's toil on to a successful issue.

The second self-admonition which I would urge upon every one whether in the ranks or on the staff, is the uncompromising suppression of that disposition which wrongfully has been termed the essence of railroading, "passing the buck." The use of this inelegant terminology implies the sense of responsibility evaded. So far should this disposition be uprooted that not only will one's own responsibility not be evaded but there will come, in its stead, a willingness and purpose to go out of one's way if need be to co-operate in attending to whatever duty lies close at hand. In these times the railway employee cannot escape the brand of traitor until he has taken the first step, nor does he earn the designation of patriot until he has taken the second. I do not advocate the indiscriminate meddling by one employee or official in the affairs of another, but what is essential is the cultivation of that spirit that will so unify the organization that all branches and individuals are mutually helpful. To observe an improper condition and to conceive an improvement without giving those most directly concerned the benefit of criticism or suggestion is to fall short of the requirements in this strenuous day.

While the present and the purpose immediately in hand are of vastly greater consequence than the future, it is not beside the point to give heed to the probable status of our chosen industry after the present season of strife shall have been brought to a successful close. We see our government spending its resources for the upbuilding of the railways with a lavish hand. As a war measure, freight and passenger rates have been advanced as have also the wages of the rank and file of those in railway service; this latter, however, without reference to the degree of permanence which shall apply. For the most part we believe it is no more than fair that wages for the great body of railroad men should continue on the present high plane, for certainly the schedules applying to many branches of the service in times past were neither adequate nor just.

Notwithstanding increased revenues and sweeping economies, we observe operating ratios advancing from 20 to 25 per cent over what they were before the government took control, spelling a condition under which railroads, without resort to the general treasury, could not well exist. We prefer not to contemplate the operation of the railways on a basis, after the war, requiring the making up of deficits out of the public fund. Given the privilege of adequate return for the service rendered, the roads can render the service required of them, deal fairly with their security holders, and maintain a living wage for their employees as well as can the government. Whether under private or government control, the railroad industry should "stand on its own bottom" and it is our privilege and duty so to direct our efforts that the roads may be assisted in resuming this basis of operation in due course.

Address of W. E. Dunham

It is peculiarly fitting at this time that we should stop and consider what we can do more enthusiastically to help our railways and the government at this time. We have now to look at things a great deal differently than we did a few years ago. Under the conditions which existed then our horizon practically ended at the interchange point, but we have to look at things now from all the way around the earth. We have got to stop and consider what we do, what influence it will have on the big thing, and that is, of course, the winning of this war. We must face these problems with a great deal more openmindedness than we ever did before.

We are asked by one branch of the government to save all the fuel we can; we are asked by another branch of the government not to use any copper. We have got to be a little more analytical in what we do, and possibly be a little more thorough and work out these problems more carefully before we issue orders and expect somebody else to carry them out at any expense of material or time. Personal loyalty is necessary in everything we do, loyalty which does not stop and ask what the other fellow is doing, whether it is necessary for us to do this to be as good as the other fellow, but that loyalty which will answer its own question with its own inner consciousness as to whether we have done just exactly what we could do and all we could do all the time. If we do that there is not any doubt but what every one of us will feel just as much soldiers of this government as those who are over in France.

The opportunities for every one of us are so numerous that if we attempt to look around and start on everything that we see, we will practically be useless. In our work I believe that we ought to follow a little bit the military idea—have one thing to do and do that to perfection. That does not mean, of course, to be just hobbyists, but to carry the thing through until it is done and done thoroughly. Put concentration in your efforts.

We have on our railroads now, under the instructions of the regional directors those whose duty it is to look after reclaiming materials, so that we will not have to buy articles or use new stuff to the detriment of the government in furnishing good materials for the army across the water. It is surprising how much you can do along that line when you really get out and on the job.

One of our old employees who has been in France quite a while with the railway corps, wrote to Mr. Quayle and said, "If I only had that old scrap pile back of Chicago avenue, I would think I had a gold mine." Let us get a little bit more use out of that old scrap pile and let the fellow over there have the new material. If we get started on that line now, we will be ready for what is coming next year. Without a doubt we will be told that we cannot have copper, that we cannot have paints of a certain kind, and we will be told we cannot have this or that thing, and it is well to start right now utilizing anything we have on hand before we ask for anything new.

Buy Bonds to Your UTMOST

General News Department

The Canadian Northern tunnel, the entrance of that road to its terminal in Montreal, was opened for business on September 21. Two passenger trains between Montreal and Toronto will soon be put on.

The Western Railway Club, at its meeting on September 16, elected L. P. Michael, chief draftsman, Chicago & North Western, second vice-president and A. F. Stuebing, western mechanical editor, *Railway Age*, secretary and treasurer to fill out unexpired terms.

A passenger train of the Great Northern was stopped by a robber near Mukilteo, Wash., on the night of September 23, and registered mail of large value was carried off. The robber forced the engineman, by use of a gun, to stop the train, and then to uncouple the mail and baggage cars and draw them forward.

Disastrous Collision in France

A press despatch from Paris, September 20, reports a collision between Dijon and Laroche, in which 30 persons were killed and 25 injured. Most of the passengers killed were children, as was the case in the recent collision in Germany. American soldiers, from a cantonment nearby, took a prominent part in rescuing the injured passengers.

Increase in Grain Loading

Nearly 100,000 more cars of grain were loaded by the railroads under federal control during the period from July 1 to September 14 than during the corresponding period of last year, according to a statement authorized by Director General McAdoo, giving the figures by weeks for each region. The total for the period in 1918 was 335,786 cars, as compared with 233,841 in the corresponding period of 1917.

Disastrous Collision at Dresden

A press despatch of September 24 reports a collision at Dresden, Germany, between an eastbound express train and another train, in which 31 persons were killed and 50 injured. This is the second collision of the first magnitude, reported from Germany within two weeks, the former collision, reported in the *Railway Age* last week, page 563, having resulted in 33 fatalities.

Correction in List of Exhibitors at Traveling Engineers' Association Convention

Through an oversight the name of the American Steel Foundries, Chicago, was omitted from the list of exhibitors at the convention of the Traveling Engineers' Association, published in the *Railway Age* of September 13. This company had its usual space in the exhibit hall in which were shown models of the Simplex coupler, Simplex coupler pocket, Economy draft arm, Eclipse coupler yoke, Andrews side frame and Atlas safety guard and third point support. The representatives attending the convention were W. G. Wallace, H. J. Melchert, P. A. Martin, W. A. Wallace and B. C. Hooper.

M. C. B. Questionnaire on the Use of Wood in Car Construction

The Master Car Builders' Association, acting in conjunction with the American Wood Preservers' Association and the Forest Products Laboratory of the United States Forest Service, has sent to the members a circular asking for information necessary to permit a thorough study of the proper utilization of wood in car construction and the development of methods of protecting timber against decay. The questionnaire also asks for data concerning the results obtained by using hard woods and uncommon species of wood in car building, the efforts made to save old car lumber and the comparative life of single sheathed and double sheathed box cars of similar weight and capacity.

Massachusetts Railroads

Train service and other railroad conditions in Massachusetts are the subject of a long report which has just been made by the Public Service Commission of that state to the Railroad Administration at Washington, in compliance with a request recently made. Freight service has been poor for at least three years, and passenger service has not been improved much for many years, except that steel cars have been introduced and electric lights have been put into through trains. The block system has been extended, but roadways have not been kept up to first-class condition, although they are reasonably safe. It is recognized that labor conditions have greatly hampered the roads, and the suggestion is made that perhaps trackmen ought to be classed as skilled labor so as to put them in a more favorable situation as related to the demands of the draft and of rival industries. On the whole, it is believed that the general situation has improved materially since the government took control of the roads. The people have put up with inconvenience because of the belief that economies which reduce the service have been necessary because of the war; but the limiting of local tickets to 48 hours is believed to be an unwarrantable interference with passengers' convenience.

Revisions of M. C. B. Rules for 1918-19

The changes in the Master Car Builders' Rules of Interchange for freight cars, for the coming year, proposed by the Arbitration Committee and referred to the Railroad Administration, have been passed on. The new rules as affecting bills for repairs will go into effect on October 1, 1918, although they will probably not be in the hands of all the roads until some later date.

The rules have been retained as nearly as possible in the present form, as far as they apply to roads not under federal control. To take care of interchange between roads operated by the Railroad Administration, a preface has been added. Article I of the preface covers necessary changes in the rules to conform to Circular 7 of the Division of Operation. Article II provides for the elimination of defect carding between roads under federal control, while Article III eliminates billing for certain minor items between roads under federal control. Article IV covers the proper charges for re-weighing and stenciling cars belonging to Government controlled roads.

The following list gives the items affected by the principal modifications in the rules: rule 3, section h, paragraph 2, covers the Railroad Administration's requirements with regard to standards for certain repairs; rule 7 provides for a standard original record of repairs made and the method of handling; rules 32 and 43, covering the responsibility for certain repairs, have been altered. Under rule 101 average credit prices have been provided for certain air brake parts and also for brake beams. The labor allowance for ordinary repair work has been raised to 58 cents an hour and for work on tanks of tank cars to 68 cents. Settlement prices for destroyed cars have been increased to meet present conditions. The percentage to be added to bills, as provided under rule 106, has been reduced from 35 to 30.

Revenues and Expenses for July

The effect of the large increases in freight and passenger rates which became effective in June are plainly to be seen in the statistics of revenues and expenses for the month of July just issued by the Interstate Commerce Commission. For the first time this year there is shown an increase in net operating income, from $92,599,000 to $137,845,000, in spite of the continuing increase in expenses, and the operating ratio was 67.64, less than it was in July, 1917, while the ratio for seven months of the year was 83.61. Freight revenues show an increase of approximately one-third and passenger revenues an even greater increase. Mail revenues continue to decrease. Total revenues were $468,000,000 as compared with $348,000,000; operating expenses were $316,000,000 as compared with $237,000,000. For the first seven months of the year, however, the net operating income shows a reduction of $242,000,000, operating revenues having increased by only $304,000,000 while operating expenses were about $540,000,000 greater. The net operating income for the seven months was $290,001,183, as compared with $532,574,488 in 1917. Total operating revenues were $2,549,093,932 and total operating expenses were $2,131,412,009.

SUMMARY OF MONTHLY REPORTS OF LARGE ROADS—FOR THE MONTH OF JULY

This summary covers only roads having operating revenues above $1,000,000 for the year ended December 31, 1917.* [Includes 178 Class I roads and 14 switching and terminal companies.]

Item	United States Amount 1918	United States Amount 1917	United States Per mile of road operated 1918	United States Per mile of road operated 1917	Eastern District Amount 1918	Eastern District Amount 1917	Eastern District Per mile of road operated 1918	Eastern District Per mile of road operated 1917
1. Average number miles operated	232,336.92	231,241.95	.....	.....	59,404.60	59,021.64	.....	.....
Revenues:								
2. Freight	$327,151,575	$241,556,482	$1,408	$1,045	$154,120,951	$109,203,943	$2,594	$1,850
3. Passenger	104,403,679	73,739,148	449	319	46,682,507	33,963,799	786	575
4. Mail	4,430,674	4,846,049	19	21	1,728,662	1,900,940	29	32
5. Express	8,512,912	9,059,920	37	39	4,780,728	4,434,629	81	75
6. All other transportation	12,091,375	9,900,839	52	43	7,214,775	5,706,508	121	97
7. Incidental	11,434,565	9,076,021	50	39	6,709,887	5,091,102	113	86
8. Joint facility—Cr.	523,511	352,764	2	2	296,841	161,398	5	3
9. Joint facility—Dr.	168,487	136,829	1	1	87,957	84,422	1	1
10. Railway operating revenues	468,379,804	348,394,394	2,016	1,507	221,446,094	160,377,897	3,728	2,717
Expenses:								
11. Maintenance of way and structures	53,904,452	40,740,529	232	176	23,180,701	17,178,645	390	291
12. Maintenance of equipment	82,953,281	56,068,842	357	242	41,533,083	26,410,855	699	447
13. Traffic	3,817,455	5,396,154	16	23	1,751,817	2,132,968	29	36
14. Transportation	164,127,135	125,116,519	707	541	80,738,579	62,434,590	1,359	1,058
15. Miscellaneous operations	3,393,576	2,873,008	15	13	1,593,897	1,319,486	28	22
16. General	9,092,888	8,298,248	39	36	4,055,267	3,756,284	68	64
17. Transportation for investment—Cr.	474,949	683,922	2	2	61,888	69,616	1	1
18. Railway operating expenses	316,813,838	237,809,378	1,364	1,029	152,791,456	113,163,218	2,572	1,917
19. Net revenue from railway operations	151,565,966	110,585,016	652	478	68,654,938	47,214,679	1,156	800
20. Railway tax accruals (excluding "War Taxes")	15,803,327	14,898,911	68	64	6,273,748	5,983,804	106	102
21. Uncollectible railway revenues	63,609	35,863	.....	.....	15,703	10,403	.....	.....
22. Railway operating income	135,699,030	95,650,242	584	414	62,365,487	41,220,472	1,050	698
23. Equipment rents	3,578,670	†1,765,404	15	†8	†133,518	†3,256,002	†2	†55
24. Joint facility rent (Dr. Bal.)	1,432,275	1,285,218	6	6	567,744	669,922	10	11
25. Net of items 22, 23 and 24	137,845,425	92,599,620	593	400	61,664,225	37,294,548	1,038	632
26. Ratio of operating expenses to operating revs.. %	67.64	68.26	.....	.....	69.00	70.56	.....	.....

Item	Southern District Amount 1918	Southern District Amount 1917	Southern District Per mile of road operated 1918	Southern District Per mile of road operated 1917	Western District Amount 1918	Western District Amount 1917	Western District Per mile of road operated 1918	Western District Per mile of road operated 1917
1. Average number miles operated	42,961.17	42,763.30	.....	.....	129,971.15	129,457.01	.....	.....
Revenues:								
2. Freight	$50,840,839	$35,957,629	$1,183	$841	$122,189,785	96,394,910	940	745
3. Passenger	18,470,550	9,895,088	430	231	39,250,622	29,880,261	302	231
4. Mail	718,544	746,829	17	17	1,983,468	2,198,280	15	17
5. Express	857,926	1,196,208	20	28	2,874,258	3,429,083	22	26
6. All other transportation	816,520	669,793	19	16	4,060,080	3,524,538	31	27
7. Incidental	1,362,003	904,766	32	21	3,362,675	3,080,153	26	24
8. Joint facility—Cr.	120,548	93,882	3	2	106,122	97,484	1	.....
9. Joint facility—Dr.	26,558	22,587	1	.....	53,972	29,820	.....	.....
10. Railway operating revenues	73,160,372	49,441,608	1,703	1,156	173,773,038	138,574,889	1,337	1,070
Expenses:								
11. Maintenance of way and structures	8,457,184	6,211,558	197	145	22,266,567	17,350,326	171	134
12. Maintenance of equipment	13,928,922	9,491,394	324	222	27,491,276	20,166,593	212	156
13. Traffic	714,724	959,311	17	22	1,350,914	2,303,875	10	18
14. Transportation	24,906,191	17,044,988	580	399	58,482,365	45,636,935	450	352
15. Miscellaneous operations	323,456	245,297	8	6	1,476,223	1,308,225	12	10
16. General	1,351,532	1,179,103	31	28	3,686,089	3,362,861	28	26
17. Transportation for investment—Cr.	109,150	116,002	3	3	303,911	498,304	2	4
18 Railway operating expenses	49,572,859	35,015,649	1,154	819	114,449,523	89,630,511	881	692
19. Net revenue from railway operations	23,587,513	14,425,959	549	337	59,323,515	48,944,378	456	378
20. Railway tax accruals (excluding "War Taxes")	2,349,598	2,126,355	55	50	7,179,981	6,788,752	55	52
21. Uncollectible railway revenues	12,452	8,881	.....	.....	35,454	16,579	.....	.....
22. Railway operating income	21,225,463	12,290,723	494	287	52,108,080	42,139,047	401	326
23. Equipment rents	121,289	1,436,473	3	33	3,590,899	54,125	27	.....
24. Joint facility rent (Dr. Bal.)	200,793	168,141	5	3	663,738	455,155	5	4
25. Net of items 22, 23 and 24	21,145,959	13,567,055	492	317	55,035,241	41,738,017	423	322
26. Ratio of operating expenses to operating revs.. %	67.76	70.82	.....	.....	65.86	64.68	.....	.....

*Does not include Kansas City Terminal Ry., Louisiana & Arkansas Ry., and Kansas City, Mexico & Orient Ry. of Texas. †Debit item.

Note—The average railway operating income corresponding to item No. 22 above for the month of July in the three years of the "Test period," namely, 1914, 1915 and 1916, was $344 per mile of line for the United States.

September 19, 1918.

Buy Bonds to Your UTMOST

Missouri & North Arkansas Taken Over by Government

Train service on this road, 359 miles long, was entirely suspended for four or five days last week. On September 6, the federated shops crafts on the road notified the management that unless General Order No. 27 of the Railroad Administration, and all its supplements, were made effective on that road on September 7, the shopmen would stop work. The strike took place, as threatened, on the 16th, and was only settled when the road was taken over by the government on the 20th. The receiver had found it financially impossible to pay the men according to the government wage scale. When it was announced that the road had been placed under federal control the striking employees reported for duty and trains were again run. The road had once been taken by the government and subsequently returned.

Untermyer and Sisson Before Bankers' Association

Samuel Untermyer, of New York, who represented the Railroad Security Holders' Committee in their negotiations about their contracts with the government, and Francis H. Sisson, vice-president of the Guaranty Trust Company, of New York, addressed a meeting of the Savings Bank section of the American Bankers' Association at Chicago on Tuesday of this week. Mr. Untermyer said that the railways had failed to secure modification of the contract form in two vital and fundamental particulars. Section 3, known as the acceptance clause, requires the carrier to accept an annual compensation, which will not recompense it for diversion of traffic, abandonment of operation, abrogation of traffic agreements and traffic connections, or even complete dismemberment of the property. The bare physical properties may be returned, but good-will, which has cost decades of labor and millions of expenditure to upbuild, may be destroyed, without any compensation to the railroad. The contract also requires that the road be charged with the cost of all additions and betterments, which the director general may authorize for purely war purposes, or which are incident to the process of unification; and the cost of other changes from which the government gets the entire benefit, and which the carrier may not want, and not be able to use if the property is returned to private ownership. Furthermore, the carrier will be charged with the abnormal prices of the war period, not based on a fair value to the road. As the government has reserved the right to use the entire standard return, over fixed charges, for additions and betterments not chargeable to the United States, it is not likely that there will be any increase in dividends, and probably most roads will be forced gradually to reduce and finally to discontinue their payments entirely.

Government ownership, at a fair price, will be far more advantageous for the government, and finally, it will probably be more just to the security holders than federal control under the onerous conditions of this contract.

Mr. Sisson, in considering the possible solution of the transportation problem, pointed out that government ownership of railroads has been successful in no country, with the single possible exception of Germany, where, under military rule, it has attained some decree of efficiency. The railroads of the United States, however, have served the public at the lowest capitalization and with the greatest efficiency of any railroads in the world. In its tendency to assume credit for saving the railroads, the Railroad Administration is simply priding itself upon its part in saving the transportation system from a disaster which other government agencies have forced upon it. Moreover, it is priding itself upon effecting economies through elimination of competition by pooling of operations and by the removal of all state interference, together with raising of rates, all of which steps had been strenuously advocated by the railroads themselves for years. Mr. Sisson recognized the defects of the old competitive system. He advocated the establishment of regional railroad systems under private control, with wasteful competition eliminated, and perhaps with government guarantee of investment returns. He thought that railroad stocks, when contracts were once signed, would be in the same class as railroad bonds, since, with their earnings definitely limited and guaranteed, speculative possibilities will be largely eliminated, and their prices should not greatly fluctuate.

Traffic News

The number of blast furnaces in blast in the Pittsburgh district is now 130 out of a total of 134, the greatest number in operation at any one time since last December, and in fact the greatest number in blast at any one time in this territory for many years. No furnaces in that territory are banked or out of blast for the lack of coke or other causes within the control of railroads.

The steamer J. M. Schoonmaker cleared from the Wheeling & Lake Erie dock at Cleveland this week, with a cargo of 14,767 tons of Pittsburgh coal, in addition to its own fuel, amounting to 406 tons. This is said to be the largest cargo of coal ever loaded on the Great Lakes. The Railroad Administration, Eastern region, has charge of lake shipping, and has taken special measures to secure maximum loading of vessels.

The Railroad Administration, after careful consideration of applications from shippers of sand, gravel and crushed stone, to modify the recent increases in freight rates by substituting some other basis for the uniform advance of one cent per 100 lbs., declines to adopt any other general basis. Consideration will be immediately given to all individual cases where the increases have brought about unnecessary hardships.

Railroad and Pullman tickets will be sold in a single transaction at ticket offices, according to plans worked out by the Railroad Administration to be put into effect about November 1. Under the present arrangement the passenger frequently stands in line three times; once to ascertain whether Pullman accommodations are available, before buying his ticket, again to purchase the railroad ticket, and finally to purchase the Pullman ticket.

A system of government-owned, sea-level intercoastal deep canals extending from Boston to Beaufort, N. C., was recommended in a report submitted to the Senate on September 18 by Secretary Redfield of the Department of Commerce, in response to a Senate resolution. He urged the permanent acquisition by the government of the Cape Cod and the Chesapeake and Delaware canals and their prompt improvement, as well as the construction of a sea-level canal across New Jersey.

Coal Production

Production of bituminous coal during the week ended September 14, while greater than that during the preceding week, which included Labor Day, equalled the production during the week ended August 31. Preliminary estimates place the production during the week at 12,692,000 net tons, an increase over the corresponding week of 1917 of 15.7 per cent. The shortage for the coal year to date now amounts to 13,624,000 net tons and makes necessary an average daily production during the balance of the year 2 per cent in excess of the average daily production to date if the estimated requirements established by the Fuel Administration are to be fulfilled.

The production of anthracite during the week is estimated at 2,088,000 net tons, 4 per cent above the corresponding week of 1917. Total production for the coal year to date is estimated at 47,733,000 net tons, an increase of 2½ per cent over the corresponding period of 1917.

The percentage of full time output during the week ending September 7 lost on account of car shortage is reported by the bituminous operators as 5 per cent.

The report by the Car Service Section of the Railroad Administration shows the total coal loading for the week ending September 7, as 227,603 cars, as compared with 204,791 in the corresponding week of 1917. Estimated reports for the week ended September 14, bring the increase in the total loading up to that date since January 1 to 569,302 cars.

Equipment and Supplies

Additional Locomotives for Railroad Administration

The United States Railroad Administration is expected to place orders shortly for locomotives for 1919 delivery. Reports have been received from the various railroads as to their requirements for 1919 and careful surveys have been made as to the number of engines that can be obtained for domestic roads and for military use in France, as well as for the Allied Governments. The locomotive companies still have orders which will keep their plants busy until well into next year, but the intention is to place the 1919 orders well in advance so that arrangements can be made for materials.

The German Locomotive Industry

Rudolf Ditges, general secretary of the German Locomotive Building Union, has been writing pretty freely of late in the German papers about the post-war prospects of the German locomotive industry.

He is of the opinion, says an item in the Engineer of London, that employment will be very satisfactory, but he does not think as erroneously assumed in many quarters, that the maximum productive capacity will be attained; he estimates that the production of the 19 south and north German factories will exceed by far 4,000 locomotives, with a total weight of considerably more than 200,000 tons.

He bases his belief on the following facts: Prior to the war about one-fourth of the output of large and small engines was exported; at present this is all available for filling home orders, so that more locomotives are now at the disposal of the home railways, field and military railways, than was the case in peace times; the difficulties experienced in connection with transport and traffic are due more to lack of coal than of engines, although several thousand engines have been sent to neutrals, to the Allies of the Central Powers, and to occupied territories. Most of them will return more or less uninjured from the different military fronts, etc., and will be sold to building contractors, large factories, and small branch railway line companies. There will thus be a considerable demand for small locomotives at home; the broken trade relations with the leading markets of the world, however, will only be restored after overcoming many difficulties, which will take some years to do.

The falling off of export orders, and the smaller demand for small type engines will be temporarily compensated for by an increased home demand; but this will soon dwindle, as expenses after the war will have to be curtailed to the utmost, and many firms will repair their old engines instead of buying new ones. Furthermore, supplies of raw materials will not be so easily obtained; still, there are considerable stocks available yet in various available markets, and the many workmen returning to normal life from the front will enable them to be dealt with in the old and recently established factories—among the latter being that of the A. E. G. at Henningsdorf—so that there will be no lack of locomotives in Germany.

Machinery and Tools

THE PENNSYLVANIA RAILROAD is inquiring for one 18-in. and one 20-in. heavy duty slotters; two 20-in. heavy duty back-geared crank shapers, and one 18-in. crank slotting machine.

Signaling

THE NEW YORK CENTRAL has awarded a contract to the General Railway Signal Company for the installation of an electric interlocking plant at the east end of its freight classification yard at Rochester, N. Y.

Supply Trade News

B. J. McComb, superintendent of construction on the Wheeling & Lake Erie, with headquarters at Canton, Ohio, has resigned to enter the sales department of the Reading Specialties Company, Reading, Penn. He will have charge of the middle western territory, with headquarters at Canton, Ohio.

Payne G. West, assistant sales manager of the T. L. Smith Company, concrete machinery manufacturers of Milwaukee, Wis., has severed his connection with that firm to become assistant manager of fuel sales for the Lakewood Engineering Company, Cleveland, Ohio. Mr. West received his education at Carroll College, Waukesha, Wis., and in the college of engineering of the University of Wisconsin. He graduated from Carroll College in the class of 1901. After spending a number of years in various construction projects in different manufacturing lines, he became associated with the T. L. Smith Company in 1907 and was in the continuous service of that company for a period of 12 years, during most of which time he was assistant sales manager. This position afforded him an opportunity to gain a thorough knowledge of the machinery field as well as of factory production methods.

P. G. West

Oscar F. Ostby, manager of sales of the Glazier Manufacturing Company of Rochester, N. Y., has been elected vice-president of that company, with headquarters as heretofore at 2736 Grand Central Terminal, New York. He will also continue to represent the Grip Nut Company of Chicago, and the White American Locomotive Sander Company of Roanoke, Va. The Glazier Manufacturing Company manufactures a complete line of oil headlights as well as a complete line of electric headlight cases and interiors. Mr. Ostby, besides having represented the company for about a year, has also been much interested in the locomotive headlight field in the past in the interest of the International Acetylene Association and through his connection with that association, strenuously combatted the passage of headlight laws in several states which demanded electrical equipment only. He was born March 5, 1883, and received his education in the public schools of Providence, R. I. From 1901 to November, 1904, he was engaged in publicity work, following which he was connected with the Commercial Acetylene Railway Light & Signal Company, and later, with the Refrigerator, Heater &

O. F. Ostby

Ventilator Car Company, serving with the latter as general manager. He has been one of the leading members of the Railway Supply Manufacturers' Association and was its president in 1915-1916.

Fred G. Zimmerman, assistant to secretary of Harry Vissering & Company, and the Okadee Company, has been appointed acting secretary, succeeding **Marshall E. Keg,** granted a leave of absence.

B. H. Tripp, special representative of the Chicago Pneumatic Tool Company on the Pacific coast, has been appointed district manager of sales for the Pacific coast territory, with headquarters at San Francisco, Cal., succeeding **M. W. Priseler.** The Los Angeles branch of the company will also come under Mr. Tripp's jurisdiction.

Charles H. Tucker has left the service of Toledo Bridge & Crane Company of Toledo, Ohio, and together with **William F. Billingsley** and others has incorporated the American Crane & Engineering Company of that city. It is reported that this company has a government contract for locomotive cranes and will build a plant for their manufacture.

Trade Publications

TIGHT RIVETS.—The American Flexible Bolt Company, New York, has developed a new type of rivet, known as the American rivet, which is described in Bulletin No. 301. It upsets from both ends, and because of this is claimed to make a tight rivet. Reproductions of actual photographs of plates sectioned for the purpose, are shown to illustrate this point.

FLUE GAS ANALYZER.—The Vulcan Fuel Economy Company, Chicago, Ill., in the August issue of Vulcan's Forge, describes the Vulcan-Orsat flue gas analysis instrument, which is claimed to be a decided departure from instruments of this kind now on the market and to have the advantages of precision, ease of control, durability and quick interchangeability of parts. A copy of this paper will be sent on request.

THE LUBRICATION OF BALL BEARINGS.—The United States Ball Bearing Manufacturing Company, Chicago, has reprinted in an attractive booklet an article published in the American Machinist engineering of the company. Methods of determining the best lubricants to use are described, as well as the proper housing of ball bearings. The text is well illustrated with sketches showof February 21, 1918, by Otto Bruenauer, director of sales and ing ways of sealing the bearings from dirt and water.

SUPERHEATER UNIT MAINTENANCE.—This is the title of an eight-page pamphlet issued by the Locomotive Superheater Company, New York, describing the principles pertaining to the care and operation of the locomotive which prevent the necessity of repairs to the superheater units. Some of the matters dealt with are the necessity for clean flues, the effects of high water, the maintenance of the damper and the ball ends, etc. The pamphlet is illustrated with a number of sketches and photographs of tools that are especially adapted to the work of repairing superheater units.

THREADING MACHINERY.—An attractive 78-page catalogue, No. 24, has been issued by the Landis Machine Company, Waynesboro, Pa., which is devoted almost entirely to a detailed description of Landis bolt threading and screw cutting machinery, but also briefly describes the Landis pipe and nipple threading machine and the Landis pipe threading and cutting machine. It contains many illustrations of the machines and sketches of the detail parts, as well as a table of U. S. standard, V, Whitworth and International threads and a table showing cutting speeds per revolution of head per minute.

ELECTRIC SOLDERING IRONS.—The Cutler-Hammer Manufacturing Company, of Milwaukee, Wis., and New York, has issued an eight-page folder describing and illustrating the C-H electric soldering irons and hand tools. Two views are shown of the soldering iron, which has a threaded heating core over which the tip is screwed, and a new automatic rack is explained in detail. A six-inch current regulating plate, which provides temperature control where different grades of work are being done, and the C-H 7050 feed-through switch for installation on the heater cord, are also illustrated.

Railway Financial News

ATCHISON, TOPEKA & SANTA FE.—At the regular meeting of the directors on Tuesday, the usual quarterly dividend of 1½ per cent was declared on the common stock, payable December 2 to stock of record October 31. S. D. Beldsoe and E. D. Engel were elected directors to succeed Walker D. Hines, now assistant director general of railroads, and Homer A. Stillwell, deceased.

CANADIAN NORTHERN.—The reconstituted board of directors consists of D. B. Hanna, president, C. J. Mitchell, Major Graham Bell, Robert Hobson, Frank P. Jones, E. R. Wood, A. T. Riley and C. M. Hamilton.

CHICAGO & WESTERN INDIANA.—J. P. Morgan & Co., the First National Bank, the National City Co. and Harris, Forbes & Co. have issued the following statement to the holders of the Chicago & Western Indiana one-year 6 per cent notes, due September 1, 1918: "With regard to the Chicago & Western Indiana Railroad Company one-year 6 per cent notes which matured on September 1, and were not paid, we have received advices from John Skelton Williams, director of the Division of Finance Railroad Administration, who states: 'The director general would be willing to enter into a contract with the Chicago & Western Indiana, whereby the standard rental to be paid during the period of government control shall provide a sum of money sufficient to pay all present fixed charges and taxes, including 6 per cent per annum on this issue of $15,000,000 of notes.' In view of this assurance from the Railroad Administration to be received by the Chicago & Western Indiana under the government railroad control bill we have been requested by the company with the assent of the Railroad Administration to ask the noteholders to extend their notes for one year at 6 per cent with the present collateral remaining unchanged, upon payment for extension of the compensation of 1¼ per cent of the principal amount of notes extended. Investment yield on the extended notes would thus be slightly over 7¼ per cent. Holders of the above notes are therefore requested to present their notes at the office of J. P. Morgan & Co., receiving at the time of deposit a receipt which when a sufficient amount of notes has been deposited and the plan has been declared operative will be exchangeable for extended notes, the noteholders receiving at the time of exchange payment of the coupon due September 1, 1918, and the amount of compensation mentioned above, namely, $12.50 per $1,000-note." The bankers are acting in the matter without compensation and they urge the holders of the notes to accept the offer.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—Charles T. Lewis has been elected a director to succeed W. H. Newman, deceased. Horace E. Andrews, C. B. Seger, and Edward S. Harkness have been elected directors to succeed A. H. Smith, R. S. Lovett, and H. A. Worcester, respectively.

This company has agreed to accept the terms of the government compensation contract. See New York Central.

NEW YORK CENTRAL.—The directors of the New York Central, the Cleveland, Cincinnati, Chicago & St. Louis, and the Michigan Central, have authorized the officers to execute on behalf of those companies the federal compensation contract with the director general.

C. B. Seger, E. S. Harkness, and Charles T. Lewis have been elected directors of the New York Central, succeeding R. S. Lovett, Marvin Hughitt, and F. J. Jerome. The resignations of Leonard J. Hackney and Frank J. Jerome as directors of the New York Central and the Cleveland, Cincinnati, Chicago & St. Louis have been accepted by the boards of directors, the retirement of these men being made necessary by a recent court decision that no person in the employ of the Railroad Administration be allowed to take part in the consideration of the government contract.

The New York Central has declared the regular quarterly dividend of 1¼ per cent, payable November 1 to stock of record October 8.

Railway Officers

Railroad Administration

Regional

H. N. Rodenbaugh has been appointed staff officer, engineering, on the organization of the Southern regional director, with office at Atlanta, Ga. This was incorrectly reported as **W. R. Rodenbaugh** in our issue of September 6, page 463.

E. J. Cleave, superintendent of the Philadelphia Terminal division, of the Pennsylvania Railroad, with office at Philadelphia, Pa., has been appointed terminal manager, at Philadelphia on the staff of **C. H. Markham,** regional director of the Allegheny region.

T. E. Paradise, division master mechanic and trainmaster on the Chicago, Burlington & Quincy, with headquarters at Centerville, Iowa, has been appointed mechanical assistant on the regional director's staff of the Central Western region, with headquarters at Chicago, effective September 19.

Federal and General Managers

A. De Bernardi, general manager of the Kansas City, Mexico & Orient, with headquarters at Wichita, Kan., has been given jurisdiction over maintenance and operation on all the railroad terminals in that city.

H. F. Anderson has been appointed general manager of the San Antonio & Aransas Pass and the San Antonio, Uvalde & Gulf, with headquarters at Houston, Tex., succeeding **J. S. Peter,** who has resigned to go with the corporate interests, effective September 15.

A. Robertson, federal manager of the Missouri Pacific, the St. Louis Southwestern, lines north of Texas; the Louisiana & Arkansas and the Southern Illinois & Missouri Bridge, has had his jurisdiction extended to include the Memphis, Dallas & Gulf, which road has recently been placed under federal control.

E. T. Lamb, federal manager of the Atlanta, Birmingham & Atlantic, the Atlanta & West Point, the Western Railway of Alabama, the Charleston & Western Carolina, and the Atlanta Terminal Company, with headquarters at Atlanta, Ga., has had his jurisdiction extended over the Georgia Southern & Florida and the Hawkinsville & Florida Southern.

C. G. Burnham, federal manager of the Chicago, Burlington & Quincy, the Quincy, Omaha & Kansas City, the Toledo, Peoria & Western, west of Peoria, including the Peoria terminals; the Rockport, Langdon & Northern, and the Rapid City, Black Hills & Western, has had his jurisdiction extended over the Davenport, Rock Island & Northwestern, effective September 21.

LeRoy Kramer, federal manager of the Missouri, Kansas & Texas, the St. Louis-San Francisco, the Oklahoma Belt, the West Tulsa Belt, and the Kansas City, Clinton & Springfield, with office at St. Louis, has had his jurisdiction extended over the St. Louis-San Francisco, lines east of the Mississippi river; the latter lines were formerly under the jurisdiction of **E. T. Lamb.**

Operating

R. E. Southworth has been appointed trainmaster of the Los Angeles division of the Southern Pacific, with headquarters at Indio, Cal., vice **E. Entelman,** promoted.

F. A. Watkins has been appointed assistant trainmaster on the Toledo division, of the Pennsylvania Railroad, Western Lines, succeeding **C. W. Blount,** promoted, effective September 18.

C. E. Denney, assistant to the president on the New York, Chicago & St. Louis, with office at Cleveland, O., has been appointed assistant general manager, with the same headquarters.

C. G. Smith, trainmaster on the Chicago, Rock Island & Pacific, at Des Moines, Iowa, has been transferred to the West Iowa division, with headquarters at Council Bluffs, Iowa, effective September 12.

W. H. Guild, assistant superintendent on the Oregon-Washington Railroad & Navigation Company, at Portland, Oregon, has been appointed assistant to the general manager of the Union Pacific, effective September 19.

Walter Allen has been appointed chief despatcher on the Denver & Rio Grande, Salt Lake division, with headquarters at Salt Lake City, Utah, succeeding **E. Standiford,** who has resigned to enter military service, effective September 12.

J. S. Pope, assistant trainmaster on the Denver & Rio Grande, at Thistle, Utah, has been promoted to trainmaster, with headquarters at the same point. **P. Clifford,** assistant trainmaster, was also promoted to trainmaster, with headquarters at Thistle.

The Birmingham branch of the St. Louis-San Francisco, running from Memphis, Tenn., to Birmingham, Ala., has been returned to the management of the Frisco for operation, although it still remains under the jurisdiction of the Southern regional director.

E. A. Kelley, superintendent of terminals of the New Orleans Terminal Company and the Southern Railway, with office at New Orleans, La., has been appointed terminal manager, at that city, of all government operated lines. He will have jurisdiction over the terminals of all lines within the switching limits of New Orleans, Algiers, Avondale, Gretna and Westwego.

Fred Wear, superintendent of the Butte division, of the Great Northern, has been appointed terminal manager, at Butte, Mont., effective September 18. Mr. Wear will have jurisdiction over the terminal operations of the Butte, Anaconda & Pacific, the Chicago, Milwaukee & St. Paul, the Great Northern, the Northern Pacific, and the Oregon Short Line. The territory included in the district under his charge extends to and includes Mountain Junction on the North, the Butte Yard and M. U. transfer on the east and Silver Bow, Mont., and Dawson on the west.

The following appointments have been made on the Pennsylvania Railroad, eastern lines: **A. M. Parker,** superintendent at Camden, N. J., appointed superintendent of the Philadelphia Terminal division, with office at Philadelphia; **A. G. Mitchell,** superintendent of the Monongahela division, at Pittsburgh, Pa., appointed superintendent of the West Jersey & Seashore Railroad and the Camden Terminal division, with office at Camden, N. J.; **P. L. Grove,** superintendent at Wilmington, Del., appointed superintendent of the Monongahela division, with office at Pittsburgh, Pa.; **G. M. Smith,** assistant superintendent at Wilmington, Del., appointed superintendent of the Delaware division, with office at the same place; **A. W. McClellan,** division engineer at Altoona, Pa., appointed assistant superintendent of the Philadelphia division, with headquarters at Frazer, Pa.; **W. L. Burt,** trainmaster at New York, appointed assistant superintendent of the Maryland division, with headquarters at Shamokin, Pa., and **L. K. Marr,** passenger trainmaster at New York, appointed superintendent of the Philadelphia Terminal division, with office at Philadelphia.

Augustus E. Ruffer, who has been appointed general superintendent of the Erie Railroad, lines east, with headquarters at New York, as has already been announced in these columns, was born on July 23, 1875, at Port Jervis, N. Y. He began railway work on October 19, 1889, with the Erie as a messenger, and served for two years in the despatcher's and superintendent's office. He then was appointed an assistant clerk to the chief despatcher, and from 1894 to 1896 was a clerk in the superintendent's office. From 1896 to September, 1905, he served in the office of the superintendent of transportation consecutively as file clerk, accident clerk, special car tracer, manifest clerk, assistant chief clerk and chief clerk. On September 1, 1905, he left the service of the Erie to become special agent in the operating department of the Lehigh Valley, which position he held until October 1, 1906, when he returned to the Erie as special agent in the operating department. On May 1, 1911,

he was appointed trainmaster on the Susquehanna division, and from May of the following year to December, 1915, he was assistant superintendent on the New York division, with headquarters at Jersey City, N. J. He was appointed superintendent of the Wyoming division, at Scranton, Pa., in December, 1915, and in May, 1917, was appointed superintendent of transportation, with headquarters at New York. He subsequently served as general superintendent of transportation until his recent appointment as general superintendent, lines east, of the same road as above noted.

J. G. Bloom, whose promotion to superintendent of the Louisiana division of the Chicago, Rock Island & Pacific was announced in the *Railway Age* of August 2, was born at Xenia, Ohio, on November 25, 1869. Mr. Bloom graduated from the civil engineering course of Ohio State University in 1889. In August of that year he entered the service of the Pennsylvania Lines in an engineering corps at Cincinnati, Ohio. For the next year and a half he was with the Norfolk & Western as assistant roadmaster at Petersburg, Va., following which he engaged in city engineering work at Xenia, Ohio. In April, 1892, he became instrument man on the Baltimore & Ohio South Western at Cincinnati, and until 1902 he was consecutively assistant engineer, division engineer and principal assistant engineer, following which he became division engineer on the Baltimore & Ohio at Newcastle, Pa. In 1903, he entered the service of the Chicago, Rock Island & Pacific as principal assistant engineer at Topeka, Kan., and subsequently became engineer maintenance of way on the Southwestern and Choctaw districts. In January, 1910, he resigned to become president of the Southern Ballast Company at Lester, Okla. Later he became superintendent of construction with the J. F. Stevens Construction Company of New York and the Robert Grace Contracting Company of Pittsburgh, Pa. In October, 1914, he returned to the Rock Island with which road he was engaged on valuation work until July 1, 1916, when he became superintendent of the Amarillo division at Amarillo, Texas. In the spring of 1918 he was appointed division engineer, with headquarters at Herington, Kan., which position he held at the time of his promotion to superintendent of the Louisiana division at El Dorado, Ark., on August 1, as mentioned above.

B. A. Campbell, whose promotion to superintendent of the Salt Lake division of the Southern Pacific, with headquarters at Ogden, Utah, was announced in the *Railway Age* of September 13, was born at Elgin, Ill., on May 23, 1865. Mr. Campbell began his railway career as a passenger brakeman on the Chicago, Milwaukee & St. Paul, on March 10, 1882, and subsequently became train baggage man and freight brakeman. On August 9, 1887, he entered the service of the Chicago, Burlington & Quincy as a freight conductor. Two years later he became a passenger conductor and on March 20, 1900, he was promoted to trainmaster on the Sheridan division, with headquarters at Sheridan, Wyo. On January 1, 1906, he resigned to go with the Denver & Rio Grande at Salt Lake City, Utah. In the fall of that year he was promoted to assistant superintendent, and on April 21, 1907, he entered the service of the Southern Pacific. He was promoted to assistant superintendent on January 1, 1913, and three years later he was transferred to the Salt Lake division, where he was located at the time of his promotion as mentioned above.

Financial, Legal and Accounting

A. B. Cauthen, secretary and auditor of the Durham & Southern, with office at Durham, N. C., has been appointed auditor, reporting to **H. W. MacKenzie,** general auditor, at Portsmouth, Va.

R. G. Streit, chief clerk to the auditor of the Chicago, Indianapolis & Louisville, has been promoted to general auditor, effective September 18, succeeding **H. T. Evans,** who has resigned to become auditor for the corporation.

E. F. Broomhall, secretary for the Missouri, Kansas & Texas Lines, at Parsons, Kan., has been appointed auditor of disbursements, at St. Louis, Mo. **E. N. Larson** has been appointed auditor of revenue, at St. Louis. **C. E. Spooner,** general auditor in Kansas, has been appointed auditor, in Kansas, with headquarters at Parsons, Kan., effective August 21.

General Order No. 44, issued by the Railroad Administration on September 24, provides that the chief accounting officer in general charge of one or more accounting organizations of the director general shall be designated "federal auditor." The chief accounting officer in charge of an accounting organization under the federal auditor shall be designated "auditor." The order states that federal auditors and auditors ought not to perform any services for a railroad corporation, except in special cases, after obtaining express authority.

Traffic

B. E. Morgan, freight traffic manager of the New York, Chicago & St. Louis, at Cleveland, O., has been appointed general freight agent, with the same headquarters.

Walter S. Randolph, general agent of the passenger department of the New York Central, with office at Albany, N. Y., has been appointed assistant general passenger agent, with office at Buffalo, N. Y., to succeed **Harry Parry,** promoted; **A. L. Miller,** general agent at Montreal, Que., has been transferred to Albany, succeeding Mr. Randolph.

W. J. Mullin, general traffic manager of the Delaware & Hudson, at Albany, N. Y., has been appointed general freight and passenger agent and his former position has been abolished; **W. G. Story,** general freight agent, has been appointed assistant general freight agent; **Paul Wadsworth,** assistant to general traffic manager, has been appointed assistant to general freight agent, and **Casper F. Beck,** freight representative at Albany, has been appointed district freight agent; all with offices at Albany; **J. A. Flanders, Jr.,** freight representative, at Plattsburg, N. Y., has been appointed division freight agent, and **James T. Hayden,** passenger representative at Plattsburg, has been appointed division passenger agent; both with offices at Plattsburg.

Engineering and Rolling Stock

A. D. Williams, superintendent of motive power on the Northern district of the Southern Pacific, has had his jurisdiction extended over the Western Pacific, the Tidewater Southern and the Deep Creek, with headquarters at Sacramento, Cal.

A. H. Freygang, division engineer maintenance of way of the Baltimore & Ohio, at Chillicothe, Ohio, has been appointed assistant to engineer maintenance of way of the Baltimore & Ohio, western lines, the Dayton & Union and the Dayton Union Railroad, vice **H. R. Gibson,** promoted.

Harry G. Clark, general supervisor of maintenance of way on the Chicago, Rock Island & Pacific, has been appointed chief engineer of that road, with headquarters at Chicago, succeeding **Charles A. Morse,** who is now assistant director of operation of the Railroad Administration in charge of maintenance of way.

Frederick E. Morrow, whose promotion to chief engineer of the Chicago & Western Indiana and the Belt Railway of Chicago was announced in the *Railway Age* of September 13, was born in Howard county, Ind., in 1880. Mr. Morrow graduated from the civil engineering course at Purdue University in 1904. From June to November of that year he was employed in the engineering department of the Illinois Steel Company. From that time until April 1907, he was in the service of the Chicago & North Western, with which company he was employed as rodman, instrument man and assistant engineer. Subsequently he became field engineer in the division of track and roadway of the board of supervising engineers of the Chicago Traction Company, which position he held during the re-

F. E. Morrow

habilitation of the Chicago surface lines. In April, 1910, he entered the service of the Chicago & Western Indiana as office engineer. In March, 1913, he was promoted to principal assistant engineer. Two years later he became assistant chief engineer of both the Chicago & Western Indiana and the Belt Railway of Chicago, which position he held at the time of his promotion to chief engineer, as mentioned above.

John P. Price, who has been engaged in special work relative to signal testing on the Kentucky division of the Illinois Central, with headquarters at Louisville, Ky., has been promoted to division supervisor of signals, with the same headquarters, succeeding **Thomas L. Davis,** who has resigned to enter military service.

G. W. Corrigan, division engineer of the San Joaquin division of the Southern Pacific, lines south of Ashland, with office at Bakersfield, Cal., has been appointed division engineer of the Los Angeles division, with headquarters at Los Angeles, vice **W. M. Jackle,** promoted; **P. T. Robinson,** assistant division engineer of the Los Angeles division, at Los Angeles, Cal., has been appointed division engineer of the San Joaquin division, with headquarters at Bakersfield, vice Mr. Corrigan, and **E. H. Miller** succeeds Mr. Robinson.

H. S. Marshall, whose promotion to valuation engineer of the Chicago, Burlington & Quincy, with headquarters at Chicago, was announced in the *Railway Age* of September 20, was born in Marshall county, Ill., on November 27, 1884. He graduated from the civil engineering school of Highland Park College, Des Moines, Iowa, in 1907 and immediately thereafter entered the service of the Atchison, Topeka & Santa Fe as camp draftsman on location at Quinlan, Okla. He was later assigned to construction work on the panhandle division, where he remained until the fall of 1908. From February, 1909, until the latter part of 1911, he was associated in general practice with J. E. Craig, consulting engineer at Jacksonville, Fla., and in the fall of 1911 he became identified with the Little Dolores Land & Irrigation Company, Mesa county, Colo., with which company he remained until October, 1912, at which time he entered the valuation department of the Oregon Short Line at Salt Lake City, Utah. During his service with the Oregon Short Line, he studied law and was admitted to the bar in April, 1915. In May of that year he went to Chicago as assistant to the land committee of the president's conference committee on valuation. In May, 1918, he entered the service of the Chicago, Burlington & Quincy as chief land appraiser, which position he held at the time of his promotion to valuation engineer, as mentioned above.

H. S. Marshall

Corporate

Executive, Financial, Legal and Accounting

J. S. Clarke has been appointed treasurer of the Norfolk & Western, with headquarters at Roanoke, Va., succeeding J. **B. Lacy,** who is local treasurer of that road under federal control.

James M. Fleming has been appointed assistant secretary, assistant treasurer and transfer agent of the New York, Ontario & Western, with headquarters at New York, succeeding **A. L. Parmelee.**

S. B. Dabney, attorney for the International & Great Northern at Houston, Tex., has been appointed counsel, with the same headquarters. **R. E. Williams** has been appointed auditor, succeeding **W. J. Werner,** who is now federal auditor.

Henry Russel, vice-president of the Michigan Central, has been appointed general counsel of the Chicago, Kalamazoo & Saginaw. **E. A. Wigren,** assistant auditor of the Michigan Central, has been appointed secretary of the Chicago, Kalamazoo & Saginaw, succeeding **F. O. Waldo.**

Charles Heebner, general solicitor of the Philadelphia & Reading at Philadelphia, Pa., has been appointed general counsel, with the same headquarters. **Gordon Chambers,** assistant real estate agent at Philadelphia, has been appointed real estate agent, with the same headquarters.

C. A. Wickersham, federal general manager of the Georgia Railroad, the Atlanta & West Point and the Western Railway of Alabama, with office at Atlanta, Ga., has been appointed general manager for the lessees of the Georgia Railroad, and president of the Western Railway of Alabama, and the Atlanta & West Point, with headquarters at Atlanta.

James B. Sheean, general solicitor of the Chicago, St. Paul, Minneapolis & Omaha, at St. Paul, Minn., has been appointed general counsel for the Chicago & North Western, and the Chicago, St. Paul, Minneapolis & Omaha corporations, with headquarters at Chicago, succeeding **Edward M. Hyzer,** who remains corporate vice president of both companies, effective October 1.

W. H. Smith, assistant auditor of the Atlanta & West Point, and the Western Railway of Alabama, with office at Atlanta, Ga., has been appointed auditor of these roads and also on the Elberton & Eastern, the Washington & Lincolnton, and the Georgia Railroad. He succeeds on the last three roads **W. H. Vincent,** who has resigned to accept service with the United States Railroad Administration.

B. A. Worthington, general manager of the Cincinnati, Indianapolis & Western, under federal control and previously president of that road, has been re-elected president of the company, with headquarters at Indianapolis, Ind., succeeding **John Henry Hammond,** resigned. **F. J. Goebel,** secretary, real estate and tax commissioner, has been elected treasurer of the company, in addition to his duties as secretary, effective September 10.

C. L. Wallace, treasurer of the Trans-Mississippi Terminal, has been elected president, with headquarters at New Orleans, La., succeeding **J. L. Lancaster,** now federal manager. **J. G. Drew** has been elected vice president, with headquarters at St. Louis, Mo.; **Thomas J. Freeman** has been elected general counsel, with headquarters at New Orleans, La.; **M. D. Cloyd,** secretary, has been elected secretary and treasurer, with headquarters at New Orleans, effective September 5.

E. H. Lee, vice-president of the Chicago & Western Indiana, and chief engineer of the Belt Railway of Chicago, has been elected president of both roads; **C. G. Austin,** junior general solicitor of both roads, has been elected vice-president and general counsel of both roads; **H. T. Evans,** auditor of the Chicago, Indianapolis & Louisville, has been elected auditor and secretary of the Belt Railway of Chicago, and assistant secretary of the Chicago & Western Indiana; all with headquarters at Chicago.

Operating

H. J. Main, assistant superintendent of the Smiths Falls division of the Canadian Pacific, with office at Smiths Falls, Ont., has been appointed assistant superintendent of the Farnham division, succeeding **W. J. Pickrell,** promoted, and **J. A. Cook** has been appointed assistant superintendent of the Smiths Falls division, in place of Mr. Main.

Engineering and Rolling Stock

D. J. Kerr, office engineer of the Great Northern, with headquarters in St. Paul, Minn., has been appointed corporate engineer.

R. J. Needham has been appointed mechanical and electrical engineer of motive power and car departments of the Grand Trunk, with headquarters at Montreal, Que.

Russell C. Watkins, who has been appointed corporate maintenance of way engineer of the Southern Pacific Lines in Texas and Louisiana, with headquarters at San Antonio, Tex., was born in Lowndes county, Alabama, on September 18, 1874. In 1895, following his graduation from college, he entered the service of the Southern Pacific Lines as a track student on the Devils River section between San Antonio and El Paso, where he remained until March 1, 1896, when he was transferred to Houston, Tex., working as a track student and assistant foreman. On October 1, 1896, he was given leave to take a position as chief engineer of the Juarez Construction Company in Mexico. Mr. Watkins returned to the Southern Pacific lines as engineer in charge of grade raising through the Rio Grande Valley east of El Paso in the fall of 1897. Following the completion of this work in 1898 he worked with maintenance and locating parties on the Texas lines until transferred to Louisiana. While there he was consecutively assistant engineer of maintenance and construction, office engineer, and temporarily division engineer at San Antonio. Early in 1905 he was appointed right-of-way agent of the lines in Texas and Louisiana and on June 1, 1913, he was promoted to division superintendent on the Houston division, with headquarters at San Antonio, which position he held until his appointment as noted above.

Railway Officers in Military Service

Major F. G. Jonah, corps of engineers, who was previously chief engineer of the St. Louis-San Francisco, has been promoted to the rank of lieutenant-colonel.

Major G. M. Rice, corps of engineers, who was previously chief engineer of the Puget Sound and Willapa Harbor, has been promoted to the rank of lieutenant-colonel.

Lieutenant-Colonel Lincoln Bush, formerly chief engineer of the Delaware, Lackawanna & Western, and later consulting bridge engineer, at New York City, has been commissioned colonel in the construction division of the quartermaster corps at Washington, D. C.

Obituary

Arch Bishop Eldredge, president and general counsel of the Duluth, South Shore & Atlantic, and president of the Mineral Range, whose death at New York, on September 9, was announced in the *Railway Age* of September 13, was born at Fond du Lac, Wis., on May 12, 1853. He was educated at Princeton University and Racine College, graduating from the latter institution in 1875. He entered railway service on January 1, 1882, and subsequently was attorney in Michigan for the Chicago & North Western; from 1890 to 1910, general attorney for the Duluth, South Shore & Atlantic, at Marquette, Mich., and from 1910 to December 1, 1911, director and vice-president of the latter road, with the same headquarters. He was then elected president and general counsel, with office at Marquette, which position he held at the time of his death.

A. B. Eldredge

Captain W. W. Baldwin, who went overseas in the Rainbow division, was killed in action on August 1. He entered the service of the New York, Westchester & Boston as general passenger and freight agent and industrial agent on December 1, 1915, resigning in June, 1917, to enter the officers' training camp at Plattsburg.

Edward E. Kerwin, vice-president of the Virginia Railway, with headquarters at Norfolk, Va., died on September 18, in a hotel while on a visit to New York. He was born on December 18, 1861, at Turner, N. Y., and began railway work on August 1, 1871, on the New York, Lake Erie & Western, now the Erie, and served as a waterboy and section laborer until March, 1883. He was then a telegraph operator and station agent on the same road and later was telegraph operator and station agent on the West Shore. From March, 1885, to April, 1886, he was with the Union Pacific as telegraph operator, and then went to the Chicago, Milwaukee & St. Paul as telegraph operator and station agent on the Council Bluffs division. Two years later he went to the Chicago Great Western, serving as telegraph operator, station agent and train despatcher. From March, 1890, to June, 1902, he was in the service of the Iowa Central first as train despatcher for two years, and then chief despatcher two years, and later trainmaster for eight years. In June, 1902, he was appointed trainmaster on the Central of New Jersey, and the following October was promoted to superintendent of the Central and the Lehigh & Susquehanna divisions. He left the service of the Central of New Jersey in February, 1914, and went with the Minneapolis & St. Louis as general superintendent at Minneapolis, Minn. He was later made superintendent at Watertown, S. D., and since March, 1917, served as vice-president of the Virginian Railway at Norfolk, Va.

E. E. Kerwin

A War Time Court Decision.—An interesting court decision was recently given in Paris. A girl, along with other refugees, was being taken to a place of safety, when the train in which she was traveling met with an accident. The court held that, as the accident took place when it was necessary for the safety of the country that a certain line should be kept busily at work, and that trains should be sent along it in quick succession, the railway employees were so greatly overworked that they could not reasonably be held responsible for any mistake they might have made. The plaintiff was accordingly non-suited.

Transporting Our Troops.—The world has been astonished at the great number of American soldiers transported to Europe in the last half year. The number now approximates 1,500,000, and the loss of life in transporting them has been almost infinitesimal. The success with which we have moved our troops from the scattered camps in this country and across 3,000 miles of ocean to the battle front is great evidence of American efficiency. We have not only surprised our enemies; we have surprised our friends and ourselves. The British controller of shipping, Sir Joseph Maclay, speaks of this movement across the sea as "A transport miracle." We have been inclined to attribute this achievement solely to our Navy and our shipping, but the British controller speaks in high praise of the share the American railroads had in the work. He says: "If the American railroads had not been operated with success the whole transport movement might have failed, because it was essential to quick transportation that the troops should be ready for the ships"—*Treasury Department, Bureau of Publicity, War Loan Organization.*